S. HRG. 102-264

ENERGY TAX INCENTIVES

HEARING

BEFORE THE

SUBCOMMITTEE ON
ENERGY AND AGRICULTURAL TAXATION

OF THE

COMMITTEE ON FINANCE
UNITED STATES SENATE

ONE HUNDRED SECOND CONGRESS

FIRST SESSION

ON

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JUNE 13 AND 14, 1991

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COMMUNICATIONS

ENERGY TAX INCENTIVES

THURSDAY, JUNE 13, 1991

U.S. SENATE,
SUBCOMMITTEE ON ENERGY AND
AGRICULTURAL TAXATION,
COMMITTEE ON FINANCE,
Washington, DC.

The hearing was convened, pursuant to notice, at 2:30 p.m., in room SD-215, Dirksen Senate Office Building, Hon. Tom Daschle, (chairman of the subcommittee) presiding.

Also present: Senators Bradley, Rockefeller, Danforth, and Grassley.

[The press release announcing the hearing follows:]

[Press Release No. H-21, June 6, 1991]

SUBCOMMITTEE HEARING PLANNED ON ENERGY TAX INCENTIVES; DASCHLE CITES NEED FOR ENERGY STRATEGY

WASHINGTON, DC—Senator Tom Daschle, Chairman of the Finance Subcommittee will hold hearings on renewable and conservation energy tax incentives.

The hearings will be *Thursday, June 13, 1991 at 2:30 p.m. and Friday, June 14, 1991 at 9:30 a.m.* in Room SD-215 of the Dirksen Senate Office Building.

The hearings will focus on proposals for tax incentives in the following areas: renewable technologies for generating electricity, including solar, geothermal and wind technologies; alternative transportation fuels, including incentives for the construction of domestic alcohol fuels facilities; utility customer rebates for conservation measures; employer-provided parking and mass transit benefits; and other energy conservation incentives.

Daschle said legislation has already been introduced in most of these areas. He said comments are welcome on existing bills, as well as on new renewable and conservation energy tax incentive proposals that would be appropriate for inclusion in a national energy policy plan.

"We must not allow the resolution of the Persian Gulf conflict to lull our country back into a lackadaisical attitude with regard to the development of renewable energy technologies and conservation measures," Daschle said.

"A sound national energy strategy must include measures that focus on long term energy security and protection of the environment," Daschle said.

OPENING STATEMENT OF HON. TOM DASCHLE, A U.S. SENATOR FROM SOUTH DAKOTA, CHAIRMAN OF THE SUBCOMMITTEE

Senator DASCHLE. The hearing will come to order. I want to welcome everyone this afternoon. This is the start of 2 days of hearings on energy tax incentives.

As I have said before, it is my view that any meaningful energy policy must have four specific legs: First, improved conservation of energy; second, the development of domestic alternative and renewable energy sources; third, better utilization of our fossil resources;

and fourth, the development of strategic petroleum and product reserves in cases of emergencies. If any one leg is missing, the policy, in my view, cannot stand.

The hearing we are about to begin will focus on the first two legs of that policy. Today we will consider tax measures to promote renewable energy development and production, and tomorrow we will address tax incentives for energy efficiency and conservation.

The Senate Energy Committee recently completed work on a package of measures within its jurisdiction designed to address many of America's future energy needs. The types of tax proposals we will discuss today and tomorrow are an absolutely essential component of any comprehensive and long-term national energy policy.

As we have many bills to cover and many witnesses to hear from, I would like each witness to limit his or her remarks to 5 minutes. Of course, longer statements and any additional comments will be submitted for the hearing record.

I am extremely pleased that Congress and the administration are finally addressing America's need for an energy policy. Due to oil shocks in 1973 and 1979, the Nation was shaken from complacency to confront its vulnerability by conserving energy and developing alternative sources.

But for a decade now, we have floated in limbo. We closed our eyes as oil imports rose; foreign dependency increased; the environment worsened; alternative energy industries dried up from lack of support. While some of our leaders have clung to the free market as if it were the Holy Grail, our Nation moves further and further from a balanced energy policy.

Despite what can be called at best a patchwork energy policy today, we have achieved remarkable benefits from the modest conservation measures instituted in the 1970's. The country saves an estimated $160 billion annually in energy costs due to conservation measures instituted since 1973. While overall energy consumption in 1973 was virtually identical to 1986, our GNP grew 40 percent during that time period.

The strides made in the 1970's and 1980's were spurred by several factors: Oil became more expensive, causing people to use less of it; Congress passed new fuel efficiency or CAFE standards, raising fuel economy from an average 13 miles-per-gallon to 27.5; homes were weatherized; refrigerators and other home appliances became more efficient; energy conservation became a central design for new and existing utilities.

But the progress of the 1970's stalled in the 1980's when efforts to put our country on a sound energy footing dropped to an unacceptable level. Let us look at some of the accomplishments of the 1980's. Solar collectors on the roof of the White House were taken down, and conservation became a campaign word synonymous with weakness. The Department of Energy was slated for elimination; CAFE standards were rolled back; DOE's research and development budget for renewable energy declined dramatically from $557 million in 1981 to $78 million in 1989.

In 1985, the 40 percent solar tax credit for homeowners expired, turning the $700 million solar industry into a $70 million industry, in the process putting approximately 35,000 people out of work.

Today, Japan and Germany use half as much energy per dollar of output as the United States. The longer we put off improving the Nation's energy efficiency and developing new sources of energy, the more precarious our position becomes.

We are at a turning point. The course we have been pursuing for the last 10 years is leading, in my view, to a dead end. The goal of these hearings is to make sure that the Nation takes a turn for the better and heads down the road to a comprehensive, environmentally sound, and forward-looking energy policy.

With that, let me welcome my colleague from Iowa and ask if he would have any opening remarks.

OPENING STATEMENT OF HON. CHARLES E. GRASSLEY, A U.S. SENATOR FROM IOWA

Senator GRASSLEY. First of all, Mr. Chairman, I thank you for holding this very important hearing regarding renewable fuels legislation.

You and I have joined in introducing S. 466, The Renewable Energy Development Act of 1991, which addresses what we consider to be a significant gap in the administration's national energy strategy.

This void concerns the lack of strong incentives in the strategy for our Nation to dramatically increase the production of renewable fuels. Any successful national energy and environmental policy will have to seriously move in the direction of shifting our reliance away from finite supplies of fossil fuels toward the infinite supply of alternative energy fuels.

The administration has taken the first steps in reiterating its support for ethanol and other alternative fuels. However, more aggressive steps must be taken. S. 466, as well as subsequent legislation that we are also considering today, would provide a tax credit for the production of electricity through renewable fuels technology, including solar, wind, photovoltaic, biomass and geothermal. These alternative fuels are keys towards a cleaner and safer environment, but also they are a virtual unlimited supply of energy.

Ironically, S. 466 is very similar to a provision of the original National Energy Strategy of this administration that was forwarded from the Department of Energy to the White House. So, the Energy Department has recognized the need for this legislation. Unfortunately, some other officials in the administration apparently thought otherwise.

The war in the Gulf has only highlighted the dangerous reliance that we have placed on oil—especially foreign oil—to fuel our Nation. Everyone seems to recognize that we need to lessen our dependence upon oil. However, the administration's response puts too much emphasis on further oil production.

In last year's Budget Reconciliation bill, a number of tax incentives for the oil industry was passed into law. Although ethanol incentives that I strongly supported were included, the bulk of the assistance went to oil production.

However, our oil reserves are going to run dry eventually, so we have got to be looking further ahead than just the next generation, or we are going to fail our responsibilities to future generations. If

we can provide a few billion dollars in tax incentives to the oil industry which is flush with cash at this time, then we can be more forward-looking and provide commensurate assistance to the energies of the future.

The administration's energy strategy is just the beginning, and President Bush, to his credit, has started the ball rolling. Now the Congress has the responsibility to move ahead and to help mold the President's initiative into a winning strategy that is even more comprehensive.

As Western Europe and Japan continue to encourage rapid development of their own renewable energy industries, Americans are in danger of losing the technological edge that we have held in the past. Renewable energy research and development is barely 10 percent of what it was a decade ago. Failure to adequately support the further development of renewable energy would be a grave environmental and economic mistake.

So, I look forward to working with you, Mr. Chairman, as we try to work these bills out, and hopefully they will be part of a package that will be signed by the President.

Thank you.

Senator DASCHLE. Thank you, Senator Grassley. Senator Rockefeller.

OPENING STATEMENT OF HON. JOHN D. ROCKEFELLER IV, A U.S SENATOR FROM WEST VIRGINIA

Senator ROCKEFELLER. Mr. Chairman, this may be somewhat longer than you bargained for, and I apologize for it, as I proceed to give it.

I feel strongly, as I think you know, Mr. Chairman, about S. 1178, which is the Alternative Fuels Incentive Act of 1991, and I am very happy to notice that other members of the Finance Committee are co-sponsoring this.

I authored the Alternative Fuels Act in 1988, because I believe that alternative fuels would help America address what I consider are very serious problems in terms of the environment, energy independence, and economic problems in general.

And on that Methanol Act, 65 of our colleagues were co-sponsors, and it was signed into law by the President. The need for aggressive action on alternative fuels, to me, has become even more clear since 1988. The debate on the Clean Air Act amendments of 1990 recognize the important role of alternative fuels in combatting urban smog.

The conflict in the Persian Gulf brought home again our critical need to end our dependence on imported oil—at least I hope it did. I am not sure it did, but I would certainly hope it did. Developments like these have raised the issue of alternative fuels, in my judgment, to a top national priority. Not long ago, the interest in new fuels and engines was viewed by some as a pastime, kind of for automobile buffs, and the like.

Today, alternative fuels have become a matter of life and death in terms of energy security. With dependence on imported oil rising now to over 50 percent, when, Mr. Chairman, do we learn a

lesson? I do not know. In any event, we have passed the danger point on all of this.

Alternative fuels are not a project for the distant future. Many alternative fuel vehicles are already on the roads across this country. A number of studies have found that fuel caps can be competitive, and the fuels can be competitive.

But there is no question either that fuels need a jump start. That is their great problem. And they need that to get going in the marketplace. This is because of the well-known "chicken-and-egg" problem. Producers of fuel cars and service station operators each wait for the availability of the others' product, the others' service, and the result is inaction.

Let me stress here that the "chicken-and-egg" problem is not resolved by the Clean Air amendments of last year, or the administration's energy strategy if it were enacted, or if it is an act at all.

I understand that the Subcommittee may hear argument later today—by which I mean I know so—and I want to say up front that it is incorrect. In fact, it is somewhat ironic for it to be suggested now that the Clean Air Act amendments take care of the problem when the Clean Air legislation was criticized when it was passed as "soft" on alternative fuels. I shared in that criticism. And the criticism, of course, was largely that they relied on reformulated gasoline.

The fact is that S. 1178 is actually essential to make alternative fuels a reality under the Clean Air Act, under State programs, and for the energy security purposes that go way beyond the scope of the Clean Air Act.

We need, Mr. Chairman, targeted efforts that resolve the "chicken-and-the-egg" problem. That is what we have to have. The Alternative Fuels Incentive Act of 1991, which is my legislation, does this by providing modest tax incentives at critical points to establishing alternative fuels in the marketplace, which is what it is all about.

The bill provides incentives for purchase of alternative fuel vehicles by business, and State and local governments. It provides a tax deduction to the ordinary customer for the purchase of alternative fuel vehicles for personal use, or business use. And it provides tax incentives for installation of fueling equipment for alternative fuels at service stations.

Previous efforts on alternative fuels have provided a foundation for the present effort, but this bill fills in blank spaces, providing the spark that is needed for infrastructure, as well as incentives for producers.

The benefit—and I will conclude—the benefit that we can gain, Mr. Chairman, from alternative fuels are now very well known. We can significantly reduce the smog in our cities and the tremendous damage to human health and the environment caused by auto emissions.

We can diversify our fuel supply so that we are not held hostage, as we have been and, indeed, were. We can move toward fuels of compressed natural gas, ethanol, and methanol, which can be made from domestic producers and sources, and all of this with the potential for contributing to domestic jobs and businesses, which is not an unhappy consequence.

All of this, of course, requires us to learn the lessons of the recent past and to have the foresight to apply them to the future. If we do not now seek alternatives to oil, in some future crisis we will face a situation in which there are no good alternatives at all.

So rarely are the choices so clear, Mr. Chairman. We must take measures to secure our Nation's future, and I hope that this Subcommittee will agree that the importance of S. 1178 is important, and will cause it to move forward.

Senator DASCHLE. Thank you, Senator Rockefeller.

Senator Bradley.

OPENING STATEMENT OF HON. BILL BRADLEY, A U.S. SENATOR FROM NEW JERSEY

Senator BRADLEY. Thank you very much, Mr. Chairman. I will be very brief. I simply want to thank you for holding these hearings, particularly on S. 679, which, as you know, is an effort to rectify what I think is a rather nonsensical IRS ruling.

As you know, since the Energy Act of 1980, utilities all across this country, in an effort to reduce consumption of foreign oil and improve energy efficiency, have been providing rebates to residential customers that would go to pay for a new furnace, more fuel-efficient appliances in the house, and varieties of different ways to improve the efficiency of the residential sector.

In my State in the last decade, over $50 million has been rebated by utilities to over 340,000 individual homeowners, and we have improved the efficiency in the residential sector by a startling amount.

Lo and behold, the IRS now rules that prospectively any of those rebates will be considered as taxable income on the part of each homeowner. Mr. Chairman, this does not make any sense at all. It is counter to the national objective to reduce our dependence on insecure sources of foreign oil, and I hope that you will hear the testimony on this bill and look at it favorably. I think it is enormously important for all of us.

I personally would not be opposed to expanding it to other sectors as well, commercial or industrial. It does add a significant cost. Expanding the bill more than doubles the amount. Instead of about $250 million over 5 years, it would be about $500 or $600 million over 5 years.

But I think at a minimum, we ought to address the problem that a lot of our constituents are going to discover in the next several years, which is that their utility is going to attempt to try to save energy through conservation. They are going to attempt to continue to do these rebates, and we are going to have a lot of individual consumers who are going to be quite angry when the IRS rings up and says that they have a tax due on the $600 that they received from the utility to put in a new furnace.

So, I hope that we will move with some haste, and this is the beginning of the process. And I thank you very much for holding the hearing.

Senator DASCHLE. Well, I applaud you for taking the leadership in that particular effort. These consumers will not have to wait for the IRS. Pepco has passed out a very good looking brochure talking

about the rebates and a customer's eligibility for rebates by doing a number of different things. But right at the bottom under "Additional Facts You Should Know," it says, "The IRS considers rebates for conservation measures taxable."

So, with all the persuasive data they have up here, that bottom line alone would probably keep them from filling out the form and sending it in to Pepco.

Senator ROCKEFELLER. Mr. Chairman.

Senator DASCHLE. Yes, Senator Rockefeller.

Senator ROCKEFELLER. I failed to enter one letter into the record, which I would like to, which is from Helen Petrauskas of Ford Motor Co. in which she says, among other things, that "Your recent proposal, S. 1178, takes the next logical step by encouraging the purchase and use of these vehicles." And also, she says, "We believe that incentive are essential if we hope to achieve market acceptance of alternative fuel technologies.

Senator DASCHLE. Without objection.

[The letter appears in the appendix.]

Senator DASCHLE. And without objection, a statement by Senator Packwood will be inserted in the record at this time.

[The prepared statement of Senator Packwood appears in the appendix.]

Senator DASCHLE. Our first witness is our colleague from Colorado, someone who has been involved in conservation and energy issues for the better part of 15 years. We are delighted he could spend some time with us this afternoon and share his thoughts with us. Tim, we are pleased you can be here, and we invite you to proceed as you see fit.

STATEMENT OF HON. TIMOTHY E. WIRTH, A U.S. SENATOR FROM COLORADO

Senator WIRTH. Mr. Chairman, thank you very much. I am delighted to be here. Thank you very much for asking me.

The need for a national energy strategy, I think, is clear to us all. I do not know how many people in South Dakota believe that we were in the Persian Gulf to restore the legitimate Government of Kuwait. I have not met anybody in Colorado who was concerned about that.

They were concerned about our dependence on oil, and the fact that we continue in this extraordinarily dangerous situation regarding energy policy. And I think we have to use this opportunity, as you have stated so many times, to move an energy strategy and do so now.

If that is the basis for what we are doing, the second set of principles, it seems to me, is that we cannot depend upon business as usual. We are not going to be able to produce our way out of this. We are going to have to depend upon significant conservation and efficiency measures. We are going to have to understand that energy and the environment are inextricably related, and we are going to have to, as Senator Rockefeller pointed out in his opening comments, spend a great deal of time focusing our efforts on alternative fuels.

We, on the Energy Committee—and Senator Bradley is a member of that committee—have been working through a major piece of legislation which we hope at some point will be out on the floor to be dovetailed with tax legislation. I think the two must go together, and your efforts are deeply appreciated.

I was asked by the committee staff to touch upon just a few items, and let me do so very quickly. I think almost all of these are in the major energy bill that I introduced in the Energy Committee, but, of course, were not included in our legislation, since we do not have tax jurisdiction.

The first you have already spoken a little bit about—the Renewable Energy Production Tax Credit, S. 466. That is in my legislation as well.

I would hope that in addition to looking at that, you would also continue your good efforts on the business energy tax credit, the 5-year extension that you and I have advocated is extremely important to provide for greater investor confidence, and to insure that we are doing everything we can to have solar and geothermal, in particular, as peaking power possibilities.

It seems to me that combination is one item that can be done very quickly by this committee, and can have a very significant impact rapidly.

Second, while I do come from an energy-producing State, I want to also remind the committee how enormously important incentives for conventional oil and gas production are. We are going to have a raging debate on the floor about opening up the Arctic National Wildlife Refuge in Alaska.

If you look at those numbers, Mr. Chairman, the amount of energy that we are going to get out of the Arctic National Wildlife Refuge is minuscule compared to national needs. The cost to the country will be enormous in doing so, not only the financial cost of doing so, but the environmental cost. And yet, there is this effort being made to open up the Arctic National Wildlife Refuge as if that is going to make a significant contribution to our national energy program; it is not.

If the Arctic National Wildlife Refuge is opened, according to the Department of Energy, we will be getting about 2 percent of our total energy needs out of the arctic, but 2 percent at enormous cost.

If, however, we spent a small percentage of the same amount of funds to continue incentives for conventional oil and gas production—particularly conventional oil production, secondary recovery in particular—that would produce a great deal more oil in the country at much less national cost and without the environmental damage.

The absurdity of the Arctic National Wildlife proposal becomes clearer and clearer and clearer and one window of that clearly comes out of this committee if you look at the costs of various alternatives and what kind of production comes out, what we get as a country out of modest incentives is much, much greater in terms of conventional production, and we do not have to open the Arctic National Wildlife Refuge.

The third point relates to conservation, and you have talked about some of that. Senator Bradley mentioned the absurd, anomalous situation we have in terms of many of the utility rebates.

It is very important that that also be understood, Senator Bradley, for commercial and industrial ventures where they are also being penalized for doing a good job, just the wrong way of doing it.

We want to encourage utilities. Efficiency improvements by utilities, Mr. Chairman, is saving us about 20 powerplants.

As an aside, I might note with you and Senator Bradley here, if we followed also the same approach of encouraging conservation and water and were to provide the ability of those rebates going back to the users, we would be a long way ahead in terms of water programs in the west. We have included some of those thoughts in our energy bill, and I would encourage you to look at that at the same time.

Two final items, Mr. Chairman. One related to the oil/heat tax credit. I am chairman of the Alliance to Save Energy. We have put together a program which we think makes a great deal of sense if you look at the 12 million homes in the country that heat with oil.

They are not heating with a fuel that comes from a central utility and a centrally billed utility. They are just doing it by themselves. The oil truck comes up, fills up their tank, and they use oil at home. They do not receive the same kind of incentives that you receive, say, with the Pepco bill that you just referred to.

If, in fact, we provided for a few very important areas—for example, using flame retention burners, thermostat controls, a handful of technologies for oil heated homes—and provide the same opportunity that we do to people who are using central utilities, we are going to save, again, a great deal of energy. But we could save just with that alone about 2 percent of the total oil demand in the United States; a very simple proposition which is not available to those homes that are heating with oil.

Final point, Senator Heinz and I handed out to everybody here copies of Project 88, a very ambitious study that Senator Heinz and I started in 1988. We had just finished the second round of that before his tragic death.

Project 88 would work a great deal on automobile fuel efficiency, and the possibility of putting together a quite innovative package of gas-sipper, gas-guzzler programs. That was in Project 88-1.

That met with a great deal of opposition from the automobile industry, not surprisingly by itself, but one of the arguments that they used was that this would discriminate against safe automobiles and would encourage imported automobiles.

We looked at some of the proposals that have come out of Texas and California on this, Mr. Chairman, and have reconfigured the gas-sipper, gas-guzzler idea to include a major program related to auto safety, as well. But if you take those automobiles that are most safe and add a variable of that with gas-sipper, gas-guzzler, you end up with a program that encourages people to buy more efficient and safe automobiles, and those tend to be American cars, as well. So, you sort of have a win-win-win in that way, and I wanted to also bring that to your attention.

I would like, Mr. Chairman, if I might, to have my statement included in full in the record. And again, let me commend you for holding this hearing. It is enormously important, as you know. You would not be doing it if you did not think so. And to dovetail what this committee can do with what the Energy Committee can do, we

can really have, I think, a very significant impact on U.S. energy policy when we get this bill to the floor.

[The prepared statement of Senator Wirth appears in the appendix.]

Senator DASCHLE. Thank you, Senator Wirth, for your excellent statement. I think you are so right. We have got to do a number of things using the jurisdictions of several committees, and using both incentives and mandates to come up with the kind of comprehensive energy policy that you have outlined just now.

To what degree, given your exposure to what other countries have done in this regard, do countries in Europe and Japan rely upon incentives as opposed to mandates to generate the kind of response through conservation and alternative energy development that they have?

Senator WIRTH. Well, they really use a very different system, and that is a price system. And the incentives that they use are really a disincentive by having prices much more match the real cost of that energy, matching more the replacement cost and being very significant. In other words, they have said we are going to have gasoline at $3.00 or, $4.00, or $4.50 a gallon, and energy overall is much more expensive. Consumers in the whole system respond very rapidly to that kind of a price trigger, or that kind of a price signal.

We have decided not to do that in the United States, and given the fact that we have decided not to do that, then we have to scramble for a whole variety of other pieces which we have tried to build into the Energy bill at the Energy Committee, and that is what this is all about, as well.

We would not, of course, have to do a lot of these things if we faced a much more realistic higher pricing situation, but that is not in the cards. I think we just had an election in the fall of 1990, and part of that election was on taxes, and taxes lost. And so, I think we are going to have to go to a whole variety of these other situations instead.

Senator DASCHLE. Senator Grassley or Senator Rockefeller, any questions?

Senator GRASSLEY. I have no questions. I thank you very much for your testimony.

Senator DASCHLE. Senator Rockefeller.

Senator ROCKEFELLER. I just might make a comment that does not relate to your subject, Senator Wirth, but more to you. And I am moved by Project 88 because you did that in concert with John Heinz, who was just incredibly close to you, and at the time of his death you really took over for his wife and for his children all the responsibilities of managing of the funeral and speaking, and it was a quite remarkable thing; quite a lovely thing, beautiful.

And I would say, too, that as much as I knew about Jack Heinz, I did not know until you explained it to me in your eulogy that the environment was a consuming passion to him, and that he had grown in that constantly year by year.

And that the two of you would have been linked up strikes me as a tribute to both of you, because your passion on the environment is seasoned and intelligent, and very effective. And I just wish to say to you in a sense, though, that Jack Heinz can hear it, too, that

you two are a remarkable pair, and that his difference is still being felt.

Senator WIRTH. Well, thank you, Senator Rockefeller. In Project 88-2 are a series of other ideas that reach way into—we are going to have, we hope, some very significant negotiations worldwide, for example, on global climate change and greenhouse forcing gases. Project 88-2 is a very complicated, but a very important construct for how we might more fairly go about doing, as a major industrial country, trading greenhouse gas permits, not dissimilar from the way in which we did it here in this country on the Clean Air Act. Jack was very worried about those equity issues, and he really filled a lot of this in. We did a lot of things together on the rain forest and the possibility of debt-for-nature swaps, which is now part of the sort of conventional way of thinking about this. So, a lot of things were done, and we have a lot of work to do.

Thank you very much. I appreciate your comments.

Senator ROCKEFELLER. Thank you very much, Mr. Chairman.

Senator DASCHLE. Thank you, Senator Wirth. Our next witness is Hon. Michael Graetz, Deputy Assistant Secretary for Tax Policy, the Department of Treasury. Dr. Graetz, we are pleased you could be with us this afternoon.

STATEMENT OF HON. MICHAEL GRAETZ, DEPUTY ASSISTANT SECRETARY FOR TAX POLICY, U.S. DEPARTMENT OF THE TREASURY

Secretary GRAETZ. Thank you, Mr. Chairman. It is a pleasure to be here this afternoon to discuss energy tax proposals with this committee.

As you know, Mr. Chairman, a few months ago the President presented the National Energy Strategy to Congress. This comprehensive report presented the findings of an extensive administration study of various policy options designed to increase energy security, to increase the availability of electricity and transportation fuels produced from renewable sources, and to improve energy conservation.

In the course of the development of that strategy, literally hundreds of alternative proposals were examined, including many tax proposals similar to those before the committee today.

The administration evaluated these proposals, trying to take into account the important energy objectives, as well as the need to maintain a healthy economy and to adhere to the 1990 Budget Act. Relatively few tax proposals were included in the National Energy Strategy. In particular, only two options in the strategy—a 1-year extension of the renewable energy tax credit, and the permanent extension of the research and development tax credit—call for statutory change in the tax laws.

Two other tax policy options—a clarification of the current law treatment of certain utility rebates, and an expansion of the allowable non-taxable limitation for transit passes—are being implemented through Administrative action.

I will now turn to the proposals listed by the committee in the hearing announcement. Let me begin with proposals that would encourage the development of renewable energy sources.

Proposals to provide incentives for electricity production for renewable sources generally fall into two categories: extension or modification of current law investment tax credits for solar and geothermal property, and new tax credits for the production of electricity from renewable sources. Current law provides a 10-percent tax credit for investment in solar and geothermal energy property, and that credit is scheduled to expire at the end of the year.

The President's budget requested a 1-year extension of that credit, and the administration at this time does not support more than a 1-year extension of the credit. We are not convinced that the incremental speed-up in the technology that would occur from extending the credit for 4 additional years justifies the $200 million in additional revenue losses that such an extension would cost.

The administration also opposes the proposal to create a special exception to the corporate alternative minimum tax by allowing the energy tax credit to offset that tax.

Current law does not contain any production tax incentives for electricity produced from renewable sources. Several bills contain proposals for such credits.

The administration opposes these credits for a number of reasons. First, the proposals will not significantly reduce the level of our oil imports. In addition, the cost of the proposed program may be quite high. Related proposals that we have examined would produce a revenue loss in the range of $500 million to $2 billion over the 5-year budget period. The revenue loss of such proposals per barrel of oil saved would be very high—in the range of $10 to $30 per barrel.

The National Energy Strategy concludes that growth in renewable energy supplies can be accelerated over the coming decades without resorting to permanent subsidies or legislative mandates. Rather, the National Energy Strategy proposes intensified investment in research and development to reduce the costs and to enhance the competitiveness of renewable energy.

There are a number of proposals before the committee relating to transportation. These proposals tend to reduce the use of conventional motor fuels by providing tax subsidies to encourage the purchase of vehicles that can operate on alternative fuels; by adopting taxes and subsidies that would encourage the purchase of fuel-efficient vehicles; by expanding the tax benefits for employer-provided transit passes and commuter vehicles; and by reducing the tax benefits for employer-provided parking.

The administration opposes the use of additional tax incentives to encourage the use of alternative fuels. The tax laws currently provide substantial subsidies to alcohol fuels. In addition, the Clean Air Act Amendments of 1990 and various State programs are expected to accelerate significantly the use of alcohol and other clean-burning fuels in areas of low air quality.

These provisions, along with other actions suggested in the National Energy Strategy—including greater Federal purchases of alternative fuel vehicles and enhanced R&D of new feed stocks—are expected to result in a substantial increase in the use of these vehicles.

With respect to the gas-guzzler tax, the administration opposes an increase in the gas-guzzler tax at this time. The tax was doubled

and the motor fuels tax was increased in the Omnibus Budget Reconciliation Act of 1990. That act also imposed a luxury excise tax on certain automobiles, which would impose a tax on many of the less fuel-efficient cars, as well.

The administration also opposes the proposed tax and rebates system of S. 741 and S. 743. We do not believe that any new Federal excise tax on the purchase of motor vehicles is appropriate, even if that tax is rebated to purchasers of more fuel-efficient or safer vehicles.

Can I continue?

Senator DASCHLE. Go right ahead.

Secretary GRAETZ. Thank you. There are a number of proposals here. I am sorry. It is hard to state our positions within the time limit.

In addition to those measures, the National Energy Strategy indicated that the limitation on the value of tax-exempt transit passes would be increased. The Internal Revenue Service has recently proposed regulations that would increase this limitation to $21 per month, effective July 1, 1991.

A number of bills have been introduced that would increase the tax exemption beyond that amount, and would allow the tax-exempt level of benefits for all employees. The administration opposes these expansions in this provision.

Other proposals seek to discourage the use of private transportation by limiting the current law exclusion from income on the value of employer-provided parking. The administration opposes these measures. The exclusion of parking expenses was part of a comprehensive re-examination of the treatment of fringe benefits during the 1980's, and we do not favor reopening this debate.

Two types of tax proposals have been suggested in an effort to encourage energy conservation: the exclusion from income of certain utility rebates and a tax credit for the cost of retrofitting older home furnaces with more fuel-efficient burners.

Senator Bradley referred to what he described as an inexplicable change in the Internal Revenue's position in 1989. And since he has left, I just wanted to comment, Senator, that that change was due to the expiration of an explicit statutory exclusion for cash payments under the National Energy Conservation Policy Act. That Act expired in June of 1989.

The National Energy Strategy called for us to clarify the nontaxability of these payments, and the Internal Revenue Service recently issued guidance on this issue in the form of a revenue ruling. This ruling which was issued on July 11 makes it clear that rebates provided to electric utilities customers as a reduction in the cost of electricity they provide may be excluded from the income of the customers. However, a cash payment remains fully taxable. A number of bills would provide an exclusion for subsidies that are provided for these kinds of conservation measures.

The administration opposes these provisions. No doubt they would lead to demands from other groups to make other types of income tax-exempt, and we have heard of water conservation earlier today. That is probably just the beginning.

A number of bills would provide non-refundable tax credits, generally up to a lifetime maximum of $100, for retrofitting residential

oil burning furnaces with flame-retention and replacement burners, or similar components that use conservation technologies.

The administration opposes these proposals because they are inefficient mechanisms for encouraging conservation. In addition, these proposals would complicate the basic tax form for all Americans and would be difficult for the IRS to administer.

Mr. Chairman, that concludes my formal statement. I submit my longer statement for the record, and would be pleased to answer any questions you or your colleagues might have.

[The prepared statement of Secretary Graetz appears in the appendix.]

Senator DASCHLE. Thank you, Mr. Graetz. I guess you are probably not surprised to learn how disappointed, at least I am, in that kind of testimony. Obviously, if one is going to have a comprehensive energy plan, not to include the incentives that these bills represent, to me, is tantamount to falling far short of any kind of a comprehensive approach.

It appears that the administration's policy is simply to consume more; to find more ways to produce traditional sources and consume more of those traditional sources at whatever cost. But I do not want to spend the afternoon arguing the issue with you. I would ask in regard to——

Secretary GRAETZ. Mr. Chairman, could I just comment on that?

Senator DASCHLE. Yes.

Secretary GRAETZ. I just want to say that the National Energy Strategy does attempt to achieve broader results than you have described. We did decide, particularly given the constrictions of the Budget Act that require tax increases or spending offsets to pay for each of the tax incentives that we are now discussing, that the goals of these kinds of proposals might better be accomplished outside the tax system.

And I will leave it to the Energy Department to discuss the alternative approaches. But I did just want to comment that the Budget Act does play an important role in our ability to provide major new tax incentives.

Senator DASCHLE. Well, let me just—I could take alternative energy or I could take conservation, either one. Let us take conservation for a minute. Maybe you could be more specific with regard to the administration's proposals for me.

Secretary GRAETZ. Well, I will do that briefly, although I do urge you to have a longer conversation with my colleagues from the Energy Department who testify next. There are energy efficiency standards for new homes. There are energy efficiency standards for new appliances.

There are certain proposed standards, as I understand it, for nonresidential equipment. There are also energy ratings relating to mortgage loans in the Energy Strategy.

There is also a proposal to retrofit existing federally owned housing and facilities. As you know, public housing is really not a good source of insulation, and so forth.

And, as I mentioned, IRS has issued a ruling to clarify the ability of utilities to engage in conservation programs under the current tax law, even if no legislation is enacted, when these utility rebates are in the form of a reduction of the price of electricity as opposed

to some of the other forms of programs. Those are some of the conservation programs proposed.

Senator DASCHLE. Well, let me just ask about the administration's position with regard to the energy credits that expire at the end of the year. The position you indicated the administration holds is that you do not support any extension beyond 1 year.

Businesses and others who have analyzed business practice say that the behavioral effect of a credit which lasts merely one year is devastating to whatever your policy goals are, that you do not produce the desired result by giving businesses a mere 12 months within which to make a decision having to do with whatever it is you are providing the incentive to do. They say that 5 years is a much more meaningful approach.

I fully understand and appreciate the logic of that. I would like to hear your response to that criticism.

Secretary GRAETZ. Yes, Mr. Chairman. I agree with the logic of it. I think that there is no question that a longer, more permanent credit creates the kind of certainty that will have a greater incentive effect in terms of business investment decisions.

In putting together the President's budget, as you know, there are a number of credits that expire at the end of this year. The research and development credit expires, the allocation of research and development expenditures expires, the low-income housing credit expires, and there are a number of others including the one we are talking about now.

Our concern was to say let us take a careful look at this, and given the budget constraints, let us pick the ones that we regard as the most important for the kind of certainty that you described. We have emphasized the need to make the research and development/research experimentation credit permanent.

That is the tax credit that we think provides the most economic growth for the dollars of revenue foregone, and that is the one we set as our priority. We did think that this energy credit merited another extension so we could see how it was working over the next year or so, but we did not go beyond the research and experimentation credit in recommending permanent extension.

Although we have gone further in the past, our basic message to Congress was let us get one credit—the most important one—permanent, and then we will move from there next year and re-examine these issues.

Senator DASCHLE. But we are not talking permanency here. Most of the legislation would extend it 5 years, not just the 1 year the administration supports. What is wrong with giving the business community a little more of a definitive appreciation of how long they can avail themselves of that credit for investment purposes? I mean, the administration also supports capital gains reduction for an extended period of time—not just 1 year, but a period of time—which gives them the advantage of certainty. What is wrong with a 5-year signal to business that they are going to have the tools with which to utilize these incentives, and thereby create the kind of response that would be necessary to make this function properly?

Secretary GRAETZ. Well, Mr. Chairman, I would respond that we had to set some priorities, and our priority was broad-based economic growth and, as a result, the research and development

credit, and the other incentives for economic growth were the ones that we decided were the top priority. We had to limit our ability to go beyond that.

And we also, frankly, have had some questions about the efficacy of this credit in stimulating new development. The geothermal area, for example, is one that even the bills before the committee today seem to suggest, may or may not need the same kind of incentive that other areas need. So, in terms of looking for a longer term solution, we thought given the budget constraints, that was as far as we should go.

Senator DASCHLE. Senator Grassley.

Senator GRASSLEY. Thank you, Mr. Chairman. Mr. Graetz, you mentioned, I think it was, in your testimony about only 5 percent of electric utility power comes from oil, so your point, I think, is that renewables would not be very helpful. Well, first of all, 5 percent could be quite a bit. In addition, even though coal is abundant, coal also is a finite resource and we are trying to move away from it.

So, it seems to me that the Department is taking a very shortsighted view. But my question is could you tell me how many barrels of oil this 5 percent might represent?

Secretary GRAETZ. I do not have that number. I can get it for you.

[The information follows:]

You asked how much fuel oil is used to produce electricity in the United States. Based on 1990 data, about 219 million barrels of oil per year is used to produce electricity; approximately 4.2 percent of total U.S. electricity production is generated from the burning of fuel oil.

Secretary GRAETZ. What we did estimate based on the revenue loss—and maybe somebody here does have that number, I will check—what we did estimate was that the credit would cost between $10 and $30 per barrel of oil, so we obviously made that calculation and decided that given the small amount of oil that is used to generate electricity, that this proposal would cost an expensive per barrel amount in terms of the substitution of these sources for oil. I do not have the number of barrels of oil.

Senator GRASSLEY. Well, then your range is a low of $10 per barrel to a high of $30 per barrel.

Secretary GRAETZ. Yes. And that simply relates to the revenue costs which are also estimated in the testimony from a low of $500 million to several times that.

Senator GRASSLEY. It seems ironic to me as I made a point in my opening statement, that the Department, in putting together an energy strategy over these last several months, I guess maybe going beyond a year, that the Department of Energy determined a production tax credit for renewable fuels was good policy, and would be a necessary component of a National Energy Strategy.

And them OMB and your Department of Treasury comes along and dismisses the initiative. It seems to me that DOE has said this is a good energy policy. Why should we give any weight to Treasury's position that it is not good energy policy when we had the Energy Department put it together? And I saw in the proposal passed from Energy to the White House that we received that this was just X'd out at OMB or the White House.

Secretary GRAETZ. Well, Mr. Grassley, I am not going to comment on the internal discussions of the administration in developing the Energy Strategy, but I do want to comment that if we relied on other Departments of the government—and I do not single out the Energy Department here—they prefer tax expenditures to other direct expenditures out of their own budgets. If the Treasury Department and the Council of Economic Advisors and other agencies of the government did not evaluate those proposals for cost-effectiveness and have discussions—and this was a collegial process, and these decisions were made collegially—if we did not do that evaluation, we would not be serving this committee well. I think that there is a natural inclination for Departments of the government to prefer to use the tax expenditure route as opposed to using some other route.

Our evaluation of this credit—and I do not know that Energy disagrees with this; I think they do agree with this—is that at this time, given budgetary constraints, this proposal requires a long-term commitment, and it is a very expensive commitment.

For a production credit, in order for it to be effective, these bills would keep this credit in effect as long as the year 2008 or so. What we would be doing in a time of very limited budget resources is making a very major commitment—maybe as much as a $1.5 billion or $2 billion over the next 5 years, and that will grow in the years beyond the budget period—to a credit that we remain unconvinced will be effective. The administration on balance—having heard the arguments of all the Departments—the President remained unconvinced, that such a credit should be advanced under these circumstances. I think the fact that there are disputes over various initial reactions and so forth among various departments of the government, particularly in terms of the use of the tax system, really is no reason for surprise. I think we all agree that this is not something that the President should support at this time.

Senator GRASSLEY. Well, is it based on tax policy or on costs to the production credit that you made your decision?

Secretary GRAETZ. It is based upon the need to make a massive commitment of Federal resources in a time of serious budgetary limits, and a need to find a revenue increase to offset that revenue loss, for a tax credit that we are not convinced is efficient in terms of the costs relative to the benefits that it would produce over that period of time. It is our judgment that this is not the kind of new tax incentive that we ought to be endorsing at this time.

Senator GRASSLEY. Well, if it is based on production costs and/or tax policy, it seems to me that this was of little concern to the Department when it came to the tax policy and the credits that were involved with the $3 billion we gave to the oil industry last year, why is one good tax policy and the other one is not? Or why is one production credit all right and the other one is not?

Secretary GRAETZ. The tax incentives that were enacted last year were in large part intended to promote the enhancement of oil production that would not otherwise occur—that once, for example, an oil well was closed up they would be abandoned. Many of those incentives go to things like enhanced oil recovery. We did support that, and we did support additional exploration of oil on the

grounds that we needed to increase the energy of the country and we made a different judgment on that.

Senator GRASSLEY. My time is up, but it seems to me that we are talking about most of these alternative energy proposals that are being put forth—infant industries relatively speaking to the oil industry which had record profits last year—and it would seem to me like it would be more reasonable to give tax incentives to infant industries, particularly when it is not a finite base for production as it is the oil industry.

Senator DASCHLE. Thank you, Senator Grassley. Senator Danforth.

Senator DANFORTH. Mr. Chairman, thank you very much. I do not have any questions. I am here simply to show my support for the Alternative Fuels Incentive Act of 1991, and to make very briefly the point that because 60 percent of the oil we consume in this country is in the form of transportation, it is clear to me that we have to address the problem of oil consumption by automobiles and trucks and buses. There really are only two ways to do it that I can think of, and this is sort of an extension of the debate that we have had relating to the CAFE issue. One way to do it is to start building little putt-putts with all of the implications that that has for both safety and for the future of our U.S. auto industry; and the other is to encourage alternative fuel vehicles.

And this bill would provide for the expensing of a part of the cost of requiring alternative fuel vehicles, and also for expensing a part of the cost of installing the refueling equipment for alternative fuel. We have to make it, in my opinion, viable for individuals and businesses to want to move toward alternative fuel vehicles. If we do that, I believe they will do that. And if they will do that, we will be a long way toward solving our present problem of being dependent on foreign sources of oil.

I know the administration temporarily has raised certain questions with respect to this legislation, but being a great admirer of Secretary Graetz and the Treasury in general, I am confidant that further evaluation will yield, if not different results, at least soften the more generous results. I have no questions.

Senator DASCHLE. Kinder and gentler results.

Senator DANFORTH. Kinder and gentler.

Senator DASCHLE. Senator Grassley's question at the end was leading exactly to the point that I wanted to pick up again in the second round, Mr. Graetz, and that has to do with where do we best use alternative incentives? Do you do it for fledgling industries that may show great potential, encouraging entry into the business and private-sector development, or do you do it for those traditional sources where the growth potential is fairly limited?

The administration, as Senator Grassley pointed out, had no difficulty, apparently, in supporting close to $3 billion, over a 5-year period of time, of tax incentives for traditional sources. And yet, opposed a similar extension for alternative sources.

That, to me, is a pretty good indication—I mean, just as clear a message as I would know how to give—that the administration, frankly, is still in this traditional mind set that the way to solve the energy problem in this country is to give the oil industry all that they need in tax incentives and whatever other measures the

government can provide, but to constrict—constrain in various ways what options there may be outside of the traditional oil avenue. Is that not a fair assessment from the position you have taken, and the administration takes, on incentives for alternative energy today?

Secretary GRAETZ. Mr. Chairman, I do not think it is. The incentives that were adopted that you have referred to were part of a long negotiation that included some items that were of great concern to the administration.

I mentioned the kind of incentive that we did feel was justified for enhanced oil recovery where, if you close up the well and you go away, that is a source of energy that will never become economically viable again, and this was done in the context of a long negotiation involving the budget agreement of last year and was worked out in a series of compromises. We got some of what we wanted, and other people got some of what they wanted through that agreement.

It is true that we have urged expansion of some of those incentives in the past. We are now in a situation where each time a new tax incentive is proposed, we need to be cautious—particularly with one of the sort that you and Senator Grassley are urging which commits the Nation to a series of tax incentives for a very long time. This production incentive is not one that will have its intended effects if people believe that it will be turned off and on the way that the investment tax credit was turned off and on during the 1970's and the way that the expiring provisions, at least, create an uncertainty about being turned off and on today.

That kind of commitment is one that I think that the government can now undertake only when we are convinced both about how to pay for it, and that the ways to pay for it are appropriate in the current circumstances and that it will be justified over a long period of time. And there is a great deal of debate, for example, about geothermal. I see different rates for geothermal.

And this credit would apply to mature technologies in some cases, and in other cases it would apply to new technologies. And those are the kinds of questions that I think we ought to be very certain about before we go forward.

Senator DASCHLE. Well, we're certain about the consequences of not having some of these incentives: The figures I used in my opening remarks about what the loss of the investment tax credit did to the solar industry in 1985, just in the last 6 years. We have seen an industry go from three-quarters of a billion dollars to one-tenth that level in 6 years' time.

Every expert I have talked to, and I am sure we will hear more in the next couple of days, will tell you emphatically and unequivocally that that devastating consequence in one industry has been the result of the loss of that tax credit.

We can only wonder now what would have happened to that industry had it been allowed to continue. Would it be a $3 to $4 billion industry at this point? Where would it be were we to have provided the incentives over the last 6 years, and to what degree would they now be supplanting the oil that we are not importing? We will not have those answers. But that is really what we are facing here, a lot of unknowns, as you say.

Let me just finally ask you with regard to the conservation rebate issue, the IRS has just announced its position that reductions in rates for conservation measures are not taxable, which obviously leaves open the question of cash rebates for conservation.

It seems inconsistent, does it not, that one form of a rebate, that is, the reduction in rates, is not taxable, but a cash rebate would be taxable. Can you explain that? What would be the difference from the government's point of view?

Secretary GRAETZ. Let me just mention that from the period 1980 to 1989 when these rebate programs did come into place, there was a specific statutory exclusion for the cash payments. That provision expired in June of 1989, and so the IRS had to analyze this in terms of the general principles of current law.

In looking at current law, they concluded first that cash rebate programs were taxable, which I think is a perfectly consistent analysis of the way in which cash payments are normally taxed under the Internal Revenue Code in the absence of a specific statutory exclusion. This is why Congress, during the period 1980 to 1999 had one.

Nevertheless, because of the importance of these conservation issues, in conjunction with the National Energy Strategy, we decided to take a hard look at current law and see if there was some traditional current law principle that would allow utilities to go forward with these programs that would not violate these principles and that, indeed, would comport with current law.

The general rule is that a purchase price reduction, for example, if you go into a department store and they give you a reduction in the purchase price of what you are purchasing, that is not taxable.

The revenue ruling concludes that if an electric utility reduces the cost of electricity to its customers, that would be a purchase price reduction of the sort that has long been held not to be taxable. That is the reason for the conclusion that we drew.

Senator DASCHLE. But is it not true that the IRS took the position that these tax rebates are taxable in an audit memorandum that came out 4 months before the National Energy Policy Act expired?

Secretary GRAETZ. I do not have in front of me the precise timing, but my understanding is that the question now is whether under current law, without a specific statutory exclusion, these payments are nontaxable, and the law changed in 1989.

Senator DASCHLE. Senator Rockefeller had asked me to ask you one question for the record.

Do you oppose the bill that both Senator Rockefeller and Danforth have addressed this afternoon on the grounds that mandates under the Clean Air Act alleviate the need for additional tax incentives for alcohol fuels? He argues that this seems a little disingenuous.

First, the areas where neat fuels will be required under the Act are limited; only approximately 20 cities will be included; and the requirements can be met with reformulated gasoline, making it uncertain that alcohol fuels would even be needed to meet the requirements. How can one argue that this is a meaningful incentive for the development of alcohol-fueled vehicles?

Secretary GRAETZ. If I left the impression through this reference to the Clean Air Act, and it does encourage the use of alternative fuel vehicles, but I did not mean to suggest that there were not other proposals. The Energy Strategy itself proposes Federal purchase of alternative fuel vehicles. It proposes new research and development on conversion technologies and on feedstocks in an effort to stimulate the production of alternative fuels. If I left the impression in my testimony to Senator Rockefeller through this reference that everything had been cured by that, I apologize for that.

Senator DASCHLE. One final question, Mr. Graetz. The administration uses a cost equivalent of anywhere from $10 to $30 a barrel for long-term extension of the solar tax credits. Is that correct?

Secretary GRAETZ. No.

Senator DASCHLE. That is not correct?

Secretary GRAETZ. That number relates to the new production credit for alternative sources. That is not a solar——

Senator DASCHLE. What is the figure that is used, do you know?

Secretary GRAETZ. Let me see if I have it. We do not have it, Senator. We can get you that number, but I do not have that with me.

Senator DASCHLE. You do not know what the range is? It is not a figure, it is a range, is it not?

Secretary GRAETZ. No, it is considerably smaller because the revenue cost is considerably smaller. So, it would be a significantly smaller number than the number under the production credit. This is the 5-year extension of the solar and geothermal credit?

Senator DASCHLE. That is right.

Secretary GRAETZ. I would be glad to get that number for you.

Senator DASCHLE. Does it not use, though, the $33 a barrel figure when measuring the benefits of developing ANWR?

Secretary GRAETZ. I do not think so. As I understand the calculation of this figure, it is a simple look at what the revenue cost is for this production credit, and then asks how many barrels of oil will be saved by that, and what is the cost per barrel of oil. I do not think the price of the oil went into that calculation.

Senator DASCHLE. Just for the record, and I do not want to press the issue, but it sounds to me as if—I have always had the impression that the administration, in arguing the benefit of the development of oil from ANWR, uses a figure of $33 a barrel in terms of their cost—in terms of the benefits of developing ANWR.

They will look at the same barrel offset by an energy tax credit and only calculate that somewhere between $10 and $30 a barrel if it is from an alternative energy source. In other words, they have a substantial reduction in the benefit ratio of developing these alternatives versus developing ANWR. If you could clarify that.

Secretary GRAETZ. Let me just say, Mr. Chairman, that the number that I have been using—there may be other numbers that you have seen that are confusing, and I agree that sometimes they are—the number that I have been using is a simple revenue cost per barrel of oil. It does not depend on what the price of oil is. It just refers to what it is going to cost us per barrel of oil, and that range would be the same even if the price of oil were different.

In terms of the $10 to $30 number that I was using, it was limited to the production credit per a barrel of oil. I will get you a com-

parable number on the solar and geothermal credit extension, and you may want to discuss those other assumptions relating to ANWR with the Energy Department.

[The information follows:]

You asked for a comparison between the cost per barrel of oil saved resulting from a 2 cent per kilowatt hour production tax credit and a 5-year extension of the current law energy investment tax credit. I had noted in my testimony that the cost per barrel of oil saved is estimated to range between $10 per barrel and $30 per barrel for a production credit. The cost per barrel of oil saved for the energy investment tax credit is estimated to range from $10 to $25 per barrel. The slightly lower upper limit noted for the energy credit reflects the fact that a greater variety of renewable energy sources qualify for the proposed production credit than for the current law energy tax credit (which is limited to solar and geothermal energy sources); the efficiency of the proposed credit differs according to the technology used. Both of these estimates assume that the energy produced would displace energy produced entirely from oil; to the extent the energy displaced would have been generated from coal, natural gas, or other non-fuel oil energy source, the estimates understate the cost per barrel of oil saved.

Senator DASCHLE. Very well. Thank you, Mr. Graetz.

Secretary GRAETZ. Thank you, Mr. Chairman.

Senator DASCHLE. Our next witness is Mr. Vito Stagliano, the Associate Deputy Under Secretary for Policy Analysis, the Department of Energy. Mr. Stagliano, we are pleased you could be with us, and invite you to proceed with your testimony as you see fit.

STATEMENT OF VITO STAGLIANO, ASSOCIATE DEPUTY UNDER SECRETARY FOR POLICY ANALYSIS, U.S. DEPARTMENT OF ENERGY

Secretary STAGLIANO. Thank you, Mr. Chairman. I appreciate the opportunity to be here today to discuss the Department of Energy's view of the legislative proposals that you are considering, and I would appreciate my written statement being included in the record.

Senator DASCHLE. Without objection.

Secretary STAGLIANO. Mr. Chairman, I do not think there is any point in my repeating the administration's position on some of the proposals that have already been discussed with the Department of the Treasury. I would rather use my time in order, perhaps, to clarify some issues that have arisen during the give and take of this afternoon.

It might be helpful, for example, to review what happened in the renewable tax credit debate during the National Energy Strategy process. We examined the possibility of transforming or continuing the 10-percent investment tax credit into something that would induce greater attention and greater activity in the renewable energy part of our energy equation. And we did the calculation for the so-called production tax credit. A production tax credit can be shaped in an infinite number of permutations. It could be extremely costly, or it could be cost-effective in some ways. It could be irrelevant in some other ways, depending on what technology is supported and at what level of subsidy.

The Department of Energy did not propose this particular tax credit in a different way than it proposed all the other NES options. The production credit was widely and intensely debated within the Cabinet process that made decisions for all the NES

issues, and I think that there were a couple of reasons why it was not adopted.

One, of course, was that under any form, under any meaningful form that we structured it, it would always be more expensive than the current investment tax credit.

Second, we felt—and I think there was fairly good consensus within the administration—that the tax credit itself was not going to address all of the problems associated with renewable energy development. That is, that R&D, especially R&D devoted to reducing the cost of these technologies was at least as important, if not more important in some cases, than the tax credit itself. It is for that reason, I think, that we made the case, and we won the case, for increasing the renewable energy R&D budget within the Department of Energy by 49 percent between fiscal year 1990 and 1991.

So, in judging the response of the administration in the NES to all of these issues, one must take account of the fact that while, perhaps, there is insufficient attention paid to a tax credit approach, other parts of the problem were addressed in other ways.

The $202 million that are now being devoted to increasing the economic viability, as well as the technical viability, of renewable energy technologies are a complement to the extension of the tax credit.

On the issue of alternative fuels, we paid a great deal of attention to alternative fuels, but I think the debate has tended to focus on the traditional definition of what we meant by reducing the transportation sector's dependence on oil. We did not focus entirely on fuels that would be traditionally referred to as alternative fuels, which are ethanol, methanol, compressed natural gas, propane.

We proposed a program that also involves significant research and breakthroughs necessary on the technology side of the matter, and not just on the fuel side of the matter. It is true that the Clean Air Act Amendments of 1990 do not require the use of actual alternative fuels in order for affected users to come into compliance. But the need to bring about cleaner burning gasoline—which is reformulated gasoline—does induce the production and use of blending agents like ethanol and ETBE, or methanol and MTBE, to such a great extent that all of the production capacities in the country would, in fact, have to be used to come into compliance with the Clean Air Act.

But aside from that, and in addition to that, the NES proposed a combination of a regulatory mandate and R&D investments to provide us as much technological choice and competition in transportation fuels we seem to have in other parts of our energy-producing system.

For example, investment in the development of a viable electric vehicle within this decade has as many implications for alternative fuel transportation policy as does the purchase of Federal fleet alternative fuel vehicles, or the mandate that commercial fleets begin to buy and use alternative fuels in their cars, trucks, and buses.

So, just to conclude, and in order to move on to your questions, I believe that it would be unfair to view the National Energy Strategy in its component parts, because there are other parts of the strategy that are not self-evident in the proposals that have come

before congressional committees. The most important of these is, of course, the change—I would say the radical change—that has taken place within the Department in allocating R&D resources among the various fuels and technologies that we deal with.

I would conclude by giving you what that change has done. For fiscal year 1992, the Department has requested the following levels of R&D investment for the following programs. Renewable technology is now at $202 million, and conservation is at $326 million. For a total of $528 million for conservation and renewable for fiscal 1992.

Petroleum R&D is at $52 million; coal is at $430, including the Clean Coal Technology Program, which is, of course, a 5-year congressionally mandated program; natural gas is at $8 million; and nuclear is at $398 million.

We believe that there is more balance and a better reflection of the priorities that emerge from the National Energy Strategy in the fiscal year 1992 budget than there has been in the DOE budgets of the previous decade.

And with that, I will be glad to answer any questions you may have, Mr. Chairman.

Senator DASCHLE. Mr. Stagliano, Mr. Graetz suggested that I ask you a couple of the questions I asked him. Let me begin by asking the question relating to the position the administration took on the provisions for oil and gas in last year's budget, whereby, obviously, because they did not urge that it be taken out, I have to assume they supported the long-term extension of oil and gas incentives to produce whatever we expect them to produce over the next 5 years. Why would they not take a consistent position with regard to alternatives?

Why, if it is good for oil and gas, if it is good enough to spend the $2.2 billion we expect to spend over the next 5 years on provisions to encourage the production of more traditional fuels, is it not equally important to encourage the production over a 5-year period of time, given this concern that everyone has expressed about behavioral response in business in the private sector to these credits, for alternative energy?

Secretary STAGLIANO. Mr. Chairman, I will try and explain it, but I am not sure I will succeed.

Remember that the oil and gas tax incentives came in as part of that package of legislation which subsequently set these very difficult rules for how we are going to deal with the Federal budget, and the need to propose any offsetting revenue for any cost that goes into the equation.

The best that I can determine, sir, is this. First of all it is different to deal with oil and gas tax incentives because we are dealing there with a fundamental issue of energy security; an energy security issue which really does not present itself when talking about renewables. In the electric utility sector, oil plays a very minor role and is only tangential to the problem that we are facing on the electric utility side.

But be that as it may, we also felt in preparing the National Energy Strategy that it was important to support the increased development of renewables and, in fact, we project that the combination of R&D and tax incentives that would be provided would, in

fact, increase renewable contributions to electricity generation by 16 percent by the year 2010.

I also believe that if a tax is available to an industry, if there is a reasonable expectation that it will be of longer duration, let us say 5 years, it would be probably better for the industry planning and for investment planning than if it were considered on a year-by-year basis.

But I return to my initial statement that part of the consideration for the renewable credit also went into the issue of how well are these different technologies maturing, what will the R&D contribution be—which is substantial--on a yearly basis. Does it make sense for both the administration and Congress to review the stage of that technology and make an annual decision as to the desirability of continuing that credit?

So, all of those things, plus this Budget Reconciliation strait jacket, I think, played into the hands of the decisions that had to be made when the final NES decisions were on the table for consideration.

Senator DASCHLE. Well, what you said by the position you took, by the position the administration took is that we have our priorities and we are going to provide the oil and gas industry with every incentive that they may require over a 5-year period of time—and I am not opposing that, necessarily—but when it comes to alternative energy sources, we are just simply not going to support the same kind of policy for alternatives that may or may not have the same potential in offsetting the need for imported oil that we consistently have demonstrated. So you are right, I was not satisfied with the answer. I did not expect I would be.

Mr. Graetz also said that you may be able to give us the Department of Energy's position on the taxation of conservation measures. I do not see any incentives for conservation in the energy plan. There are certain mandates with regard to the efficiency of appliances, but what specifically is the administration doing through the Tax Code to encourage conservation?

Secretary STAGLIANO. Well, I think that there are a number of very important initiatives in the NES for increasing system efficiency in the electric utility sector.

Among those, of course, are reforms that we have proposed to PUHCA, the Public Utility Holding Company Act, to PURPA, which has a direct bearing, incidentally, on renewable energy use and technology, and on the much more widespread and institutionalized use of integrated resources planning.

Integrated resources planning, as you know, has been supported by the Department of Energy for some years. It is now a fairly widespread concept among utilities. We have increased the budget for IRP substantially in recent years. And what makes IRP work is, in fact, the tools that one uses to encourage investment on the demand side of the equation.

Senator DASCHLE. No, but I——

Secretary STAGLIANO. And I was going to get to the issue of——

Senator DASCHLE. All right.

Secretary STAGLIANO [continuing]. Utility rebates. This was another one of those issues that required a great deal of debate. The Department of Energy—I do not think it is any secret—called for

an aggressive program of tax-free treatment of these utility rebates. The utilities themselves consider it a very major contributor to the work that they do on demand side management.

The IRS was concerned about creating what they call a new category of tax-free benefits. We believe that the approach that they have taken for the moment has its own benefits, and I would rather hold judgment on how much it will be worth.

It is conceivable that it will get to most of the issues that we were trying to get at. That is, it is a matter of tactic rather than strategy. It is equally feasible for a utility to provide a customer a cash rebate, or to reduce the utility bill for that customer on a monthly basis by an equal amount. As long as cash does not change hands, then the tax issue does not enter into the picture. So, if that can be accomplished in that way, then all to the good.

Now, some utilities believe that this treatment by the IRS will, in fact, work. Other utilities believe that it would work, perhaps better, on the residential and commercial side of the issue; it might work less well on the industrial side of the issue where much larger investments are usually needed, and it is difficult to reduce the monthly bills for such a customer.

But the fact of the matter is that the administration made the decision that instead of seeking legislative change, they would address this issue through a technical memorandum that will be released by the IRS.

The IRS did release that memorandum 2 days ago and it, in fact, does what I just mentioned. It treats in a tax-free way any rebate that is done either by a reduction of the rate that it charges to the customer, or a reduction of the bill, but not in the case where actual cash changes hands.

Senator DASCHLE. Well, frankly, I have difficulty understanding the logic of that, but I do not want to belabor the point.

Let me just ask a couple of other questions having to do with statements you have made in your formal remarks. You indicate in your statement for the committee record that market forces will be sufficient to spur the development of renewable technologies; yet, according to the estimate you provide in the statement, the administration's National Energy Strategy initiatives would increase electricity generation from renewable energy sources by 16 percent in the year 2010, almost 20 years from now. That comes down to less than 1 percent growth on an annual basis.

You seem to say from that statement that you are satisfied with that, that is the maximum projection that you can anticipate from the production of renewable sources through market forces.

How can you, on the one hand, seemingly be satisfied with that very limited amount of growth in renewable energy development as a means of responding to the concerns we have got, and yet argue at the same time that market forces are going to be sufficient to accomplish all of our objectives?

I mean, how can we be satisfied with a 16 percent increase in a 20-year period of time in the development of alternatives, if that is the Department of Energy's analysis.

Secretary STAGLIANO. I am not sure that it was intended in my statement for you to reach those conclusions. The 16 percent figure is 16 percent increase above and beyond a baseline increase which

is already larger than what it is today. And market forces alone will not do that.

We have stated in the NES that there are three other elements to needed increase renewable energy development in the United States. One is reform of the PURPA law that would eliminate the size-cap and add flexibility to the designs of renewable projects. The second one is the considerable amount of new R&D investments that is going into this sector of our economy. And I mentioned the figure of $202 million for 1992. That figure is expected to continue at least at that level, if not higher for the next 5 years, which means a $1 billion investment in renewable R&D overall.

And third, the 10-percent investment tax credit, or a similar tax credit, or a different tax credit that I am sure that the administration and the Congress will continue to debate in future years.

Senator DASCHLE. Well, I would like to follow up on that, but I look at the clock and I look at our witness list, and I suppose we better move on.

Let me ask you one final question, Mr. Stagliano. The Department of Energy currently has an advisory committee on oil production called the National Petroleum Council. Obviously, everybody is aware of it. Is there a corresponding group on alcohol fuels, renewable electricity generation technologies, or energy conservation?

Secretary STAGLIANO. Well, there is, of course, the Secretary of Energy Advisory Board which deals with all issues that are in the hands of the Department of Energy, including conservation and R&D and the fundamental sciences; in fact, all aspects of the National Energy Strategy.

There are specific organizations that are devoted to issues like alternative fuels. As part of the Alternative Motor Fuels Act of 1988, we have created and have functioning two institutions that provide advice to the Department of Energy on alternative fuel policy. One is the U.S. Council on Alternative Fuels, which among other people, is composed of four Members from Congress. The second is an interagency commission on alternative fuels which represents all of the Federal agencies that have any interest whatsoever in this issue.

These two bodies have been meeting on a regular basis, have requirements to report to Congress on an annual basis and, in fact, contributed a substantial amount of expertise to the development of the alternative fuels policies that were finally integrated into the National Energy Strategy.

We deal with efficiency issues through a variety of institutions, such as the National Association of Regulatory Utility Commissioners, who have specific subcommittees that deal with these issues; subcommittees on which we actively participate.

Senator DASCHLE. Senator Grassley.

Senator GRASSLEY. Mr. Chairman, I am only going to bring up one little point. I think you have covered most of the issues that I wanted to cover. If I do not find from the record that they were covered, I may submit something in writing.

But the point I would like to bring up—and this is from my understanding of the National Energy Strategy proposal—but from my understanding of it, it was that your department forwarded it

to the White House, and when it was forwarded it was that the Department of Energy believed that this was the best approach from an energy point of view, and the tax credit was in that proposal that went to the White House. Is that not the case, that you thought that that was an essential part of a National Energy Strategy?

Secretary STAGLIANO. Senator Grassley, we submitted first to the Cabinet and then to the President all of the options that we analyzed for the National Energy Strategy.

On the renewable energy tax credit, there were three options, actually, that went up. One was a simple extension of the current investment tax credit. The second was a very aggressive and expensive renewable energy production tax credit, and the third option was a less costly, more modest production tax credit.

There were intense debates within the Cabinet as to the desirability or the viability of all of those. And as far as my understanding is concerned, the production tax credit that is contained in one of the proposals discussed here today was turned down mainly because of its cost.

Senator GRASSLEY. All right. But my point is not what went on in the Cabinet. My point is what went on in your department? Your department did not submit just all sorts of alternatives. You submitted what you thought was a comprehensive national energy strategy, as the National Energy Strategy, did you not?

Secretary STAGLIANO. No, sir. We submitted a very long series of options analyzed for their impact in the budget, and the economy, on the environment, and on energy. All of those options went to the Cabinet. The Cabinet made decisions on all of them, and the President made the final decisions on all of them.

Senator GRASSLEY. Well, you mean you just compiled a whole bunch of things together and sent them on to the Cabinet? You did not have any thought about this piece, and that piece, and another piece being part of a comprehensive energy strategy?

Secretary STAGLIANO. Every department had a view on each one of those options and, of course, we had ours as well. But our job—at least at the level of the analyst that worked on it—was not to make any pre-judgments about any of the options that we were asked to analyze. All of the options that we analyzed—all of them—went to the Cabinet for debate.

Senator GRASSLEY. Well, I guess what that tells me is—you know, I was having a great deal of respect for the hard work that the Energy Department did on a national energy strategy. And it looks to me like you were an accounting organization or a collecting agency for a bunch of ideas that really were nothing more than just single ideas all compiled together. I will accept your statement of it, but it means less to me as a comprehensive national energy strategy and more like a compendium of a lot of good ideas, of which the one that the Chairman and I have put together here as one piece of legislation, it was just another idea. Because I had every reason to feel that the proposal that was sent to the White House was more than just ideas or possibilities.

I would like to think that the Department of Energy proposal reflected what DOE thought was the best, and that that also included

a production tax credit. I would not expect you to think any less of it just because Treasury or OMB rejected it.

I might accept the possibility that as a part of an administration, you have got to back the administration's proposal, but I would not think you would have to back off of what you thought was a good idea that you sent to the White House, that the deletion of it could not have maybe made it less comprehensive in its overall approach.

Well, I think I have made my point, Mr. Chairman. But I think I have also learned something in the process.

Senator DASCHLE. I think you have done very well, Senator Grassley. Mr. Stagliano, I have no additional questions. I thank you very much for coming to the committee this afternoon.

Secretary STAGLIANO. Thank you, sir.

[The prepared statement of Secretary Stagliano appears in the appendix.]

Senator DASCHLE. Our next list of witnesses includes a panel comprised of Mr. Brian Chatlosh; Mr. Scott Sklar; Mr. Kenneth Karas, and Dr. Daniel Lashof. If those four gentlemen could come before us at this time.

Gentlemen, we are pleased you could be with us, and we thank you for coming this afternoon. I have no particular preference as to the order in which you present your testimony, but why do we not take them as they are listed here?

Mr. Brian Chatlosh is the manager of planning and development of the Oxbow Geothermal Corp. in West Palm Beach, FL, and he is here on behalf of the Geothermal Resources Association. We welcome you and invite you to proceed.

STATEMENT OF BRIAN CHATLOSH, MANAGER, PLANNING AND DEVELOPMENT, OXBOW GEOTHERMAL CORP., WEST PALM BEACH, FL, ON BEHALF OF THE GEOTHERMAL RESOURCES ASSOCIATION

Mr. CHATLOSH. Thank you, sir. Thank you for the opportunity to discuss energy tax policy with you this afternoon.

The Geothermal Resources Association supports a permanent or multi-year extension of the Geothermal Energy Tax Credit scheduled to expire on December 31, 1991.

Such a long-term extension is embodied in S. 141. The administration has also expressed its support for the extension of a credit, albeit a 1-year extension.

The GRA supports legislation such as S. 1157, which would alleviate the harsh impact of the alternative minimum tax on the utilization of the renewable energy tax investment credits by permitting the full utilization against the AMT and the regular tax liability.

This is a critical issue to the industry, because many of the credits are not able to be used until very late years of projects, which lessens the impact of the credits on the competitiveness of the business.

The GRA supports the enactment of a production tax credit, but only as an alternative to, and not as a substitute for, a renewable energy investment tax credit. Since the purpose of the production tax credit is to spur renewable production, it should not discrimi-

nate against geothermal production by providing only one-half the credit proposed for other covered technologies, as is the case in all pending Senate bills. Geothermal has been singled out several times this afternoon.

We operate in a competitive market. Our electricity that is produced from geothermal competes against fossil-fire plants, we face high capital costs which is unlike oil and gas production. Oil and gas can be purchased or sold very near the well head, does not require the very substantial investment in power producing facilities to make a product that is sellable. New fields in remote locations need to be developed.

These credits are needed to compete with fossil-fueled alternatives. The fact that we found conversion technologies that work only means that these incentives will have the desired result; additional projects.

The energy investment tax credit is required to develop the vast geothermal resource. To date, only 10 percent of the identified recoverable high and moderate temperature resource of about 23,000 megawatts has been developed, which is only about 2 percent of the predicted range of geothermal potential which is between 95,000 and 150,000 megawatts. Given these figures, geothermal can hardly be considered a mature industry.

Geothermal energy is environmentally benign, a fact of particular importance in the era of the Clean Air Act, global warming, and concern over the greenhouse effect stemming from excessive carbon dioxide emissions.

A state-of-the-art flash geothermal project emits less than 0.1 percent of the carbon dioxide emitted into the air by fossil fuel plants for every megawatt hour of electricity that is produced. Binary plants produce essentially no air emissions of any kind.

Exploration, drilling, and production of the geothermal resource face many of the same challenges as oil and gas production but, as I said, geothermal is distinct from oil and gas in the manner that the economic value can be realized from the fuel. This distinction has a profound impact on the nature of the business and restricts the growth of the industry.

Typically, the economic value of oil and gas can be realized by an arm's length sale very near the well head. In contrast, geothermal resource can rarely be used, and has little economic value in the form in which it is produced. It requires an investment many times that of the drilling program to convert the resource to electricity at or near the well head, and transmit the power to an electric grid before economic value can be realized.

Thus, the economic value of the geothermal fuel is dependent on the successful completion and operation of an electric power plant of a certain size and design, depending upon the qualities of the resource.

The Energy Investment Tax Credit is the single most effect Federal program to promote investment in renewable energy, and has been the think margin of viability for stimulating project development which would not have otherwise occurred.

A permanent or long-term extension is needed to keep renewable energy competitive with fossil fuel options in order to continue and expand the development of renewable power.

Thank you, sir.

Senator DASCHLE. Thank you, Mr. Chatlosh. I understand that you drove all the way from Florida to present your testimony.

Mr. CHATLOSH. It was part of a planned trip but, yes, I did just drive from Florida, yes.

Senator DASCHLE. Were you able to fill up with ethanol-related fuels somewhere along the line? [Laughter.]

Mr. CHATLOSH. No. Unfortunately I was not, no.

[The prepared statement of Mr. Chatlosh appears in the appendix.]

Senator DASCHLE. Mr. Sklar is the executive director of Solar Energy Industries Association here in Washington. Mr. Sklar, we are delighted you could be with us and invite you to proceed.

STATEMENT OF SCOTT SKLAR, EXECUTIVE DIRECTOR, SOLAR ENERGY INDUSTRIES ASSOCIATION, WASHINGTON, DC

Mr. SKLAR. Thank you, Senator. The Solar Energy Industries Association is obviously the national trade organization of the photovoltaic and solar-thermal manufacturers and component suppliers.

We emphatically support S. 141, which is a brilliant piece of legislation to extend the investment tax credits at the current 10-percent level for a minimum of 5 years. We obviously support S. 1157 which would accord the solar industry at least the same alternative minimum tax treatment that the oil and gas industry enjoys.

We obviously adamantly oppose what the Treasury official representing the administration told you. And I thought I would tell you the four myths that you just got today.

One is that the ITC does not just represent electricity. A third of our industry is solar water heating and industrial process heat. And that can save at least as much, if not more, imported oil than on the electric side. In fact, we believe that once we get more commercialized in a decade, you will also see solar-augmented alcohol fuel distillation, as well as solar-charged electric vehicles. So, we will impact on the transportation sector, as well.

The second myth you got was that R&D is enough; it is not. What the Japanese told us is, it is economies of production. To get those economies of production, you need larger markets. And the fact of the matter is that unless we have market conditioning and incentives, you are not going to get the cost breakthroughs on pure R&D.

The third myth is that somehow 1 year is enough for an investment credit. That would deter investment in our industry and, frankly, make the risk-adverse investment and financial community walk away from solar. We had that happen once; it was devastating. We do not need a replay.

Finally what you were not told, in the $2.5 billion set of incentives for the fossil industry is that, frankly, it is still cheaper to do enhanced oil recovery without the incentives than it is to do renewable energy at the moment.

And why incentivize something that is cheaper than we are? It may be good policy for America to do it, but the fact of the matter is it is a double standard. And us in Animal Farm—the administra-

tion has the view that some are more equal than others—and that is just not true, or should not be true.

We, the solar industry, would also accept a production credit if it is in addition to an investment credit. Remember, a production credit alone would disenfranchise a third of our industry in solar-thermal. And production credits, in my view, will not work for thermal applications or for conservation; they are different kinds of animals and should not be production- based.

The status of the solar industry is that the solar water heating technology is in 1.2 million buildings. We displace a nuclear power plant and a half worth of electricity. And while that sounds like a lot, 1.2 million buildings in a decade, the city of Tokyo alone has 1.5 million buildings and they did it in half the time.

Solar-steam to electric plants provide approximately 400 megawatts of electricity, about half a nuclear power plant worth of electricity for 350,000 households. They are at 8 cents a kilowatt hour, and we believe with these investment credits we can bring those costs down to 6 cents a kilowatt hour if they can expand production in the market.

Photovoltaic technology, solar electric cells, is a $250 million a year industry. We produce 30 megawatts of electricity per year in annual production capacity. And I brought out one of the newest photovoltaic panels, thin films on a plastic substrait that can be pulled off an assembly line.

Now, R&D helped get us to where we are, but this technology will never be mass produced unless we can prime the market and do market conditioning. The issues at stake that we are facing here is do we in the United States want a U.S.-based industry, or do you want to import all of this renewable energy from overseas at the end of the decade?

The second issue at stake is does the United States want to stop the hemorrhage of dollars outside of our economy to import energy? And it is not just us, because this is the technology that will help a developing world also stop their hemorrhage of dollars so their economies can grow.

And the last issue at stake is do we want to create jobs for a new set of high-tech industries that will be dominant in the next decade? And this gets right down to jobs. Do you want jobs in obsolete industries, or do you want jobs in high-tech industries?

I want to commend you for holding these hearings. The fact is that a $30-million-a-year tax incentive will not bankrupt the United States, and it is mere pittance in comparison to $2.5 billion that the conventional industries have. And I hope that Congress has the wherewithal this year to develop some energy tax policy that can make some impact.

Thank you, Senator, very much.

Senator DASCHLE. Thank you, Mr. Sklar.

[The prepared statement of Mr. Sklar appears in the appendix.]

Senator DASCHLE. Mr. Karas is the president of Zond Systems. He is here on behalf of the American Wind Energy Association. Mr. Karas, we are pleased you could be with us.

STATEMENT OF KENNETH C. KARAS, PRESIDENT, ZOND SYSTEMS, INC., TEHACHAPI, CA, ON BEHALF OF THE AMERICAN WIND ENERGY ASSOCIATION

Mr. KARAS. Thank you, sir. Good afternoon. I appreciate having the opportunity of addressing this subcommittee.

The purpose of my comments are to express support for the concept of providing production tax credits for renewables, and particularly wind. Probably I will echo the comments that my colleagues have made previously.

One comment I would make right off the bat, though, is that currently wind energy is the only renewable technology represented here at the table today that does not currently have any tax credit. We do not exactly understand that, given the state of the wind industry, which I would like to brief you on.

We currently have 15,000 wind turbine generators primarily located in California, comprising 1,600 megawatts of power generating capacity, and about 50 percent of that capacity has been installed since the expiration of the energy tax credits back in 1985. Our industry currently provides for the residential needs of over a million people, which would be equivalent to the populations in cities such as San Francisco, Washington, DC, or Phoenix.

The cost of producing our power is currently at 79 cents per kilowatt hour, which is getting fairly close to being competitive with fossil-fired technologies, and with a little push, we can get there.

The availability of our equipment, which is a measure of the amount of time that the equipment is capable of producing power for equipment installed since 1985 exceeds 95 percent, which is equivalent to that of the best fossil-fired technology.

Finally, with respect to the industry, the potential is huge. The Department of Energy has estimated that our industry could provide up to 100 quads of energy in the United States, and we are currently using 85. We do not suggest that we will do that overnight, but certainly the potential is there and we could be doing a lot more than we are doing. To summarize, with respect to the industry, the technology is mature and it does work.

With respect to the benefits of our technology, there are really two; one environmental, and the other one energy security. With respect to the environmental benefits, for each 1 percent of U.S. generating capacity that would be provided by wind, we would offset 50,000 tons of nitrous oxide, sulfur dioxide, carbon monoxide particulates, 8.5 million tons per annum of carbon dioxide, and 26 million barrels of oil, or the BTU equivalents of oil, probably in the form of natural gas, which even though electrical generation in this country does not use a huge amount of oil, we nonetheless burn something, and that something is not going to be there forever.

And, as I also mentioned, we have fairly self-evident, I suppose, energy security benefits. In the next several decades, new electrical energy generating capacity in this country is going to be developed on the basis of competitive bidding. And in order to compete, the various technologies ideally would operate from a level playing field.

And to the extent that other generating technologies receive, either directly or indirectly, incentives and subsidies, if you will, through things such as oil depletion allowances, tax credits, or exemptions from AMT, and renewables, or wind, in particular do not. We are clearly at a fairly significant competitive disadvantage.

Therefore, we support the concept of receiving production tax credits for wind and for other renewables, and wish to thank you for sponsoring, along with Senator Grassley, S. 466, and appreciate these hearings and the chance to testify.

Senator DASCHLE. Thank you, Mr. Karas.

[The prepared statement of Mr. Karas appears in the appendix.]

Senator DASCHLE. Dr. Lashof is the senior scientist at the Natural Resources Defense Council here in Washington. Dr. Lashof, we are pleased you could be with us, and invite you to present your testimony.

STATEMENT OF DANIEL A. LASHOF, PH.D., SENIOR SCIENTIST, NATURAL RESOURCES DEFENSE COUNCIL, WASHINGTON, DC

Dr. LASHOF. Thank you, Mr. Chairman, and thank you for holding this very important hearing.

Energy policy, environmental policy, and tax policy are inextricably linked as we approach the 21st century. The failure of the administration's National Energy Strategy to recognize this fact puts not only our energy and environmental security at risk, it threatens our economic security. Let us learn a lesson from Japan and support industries of the future, rather than the industries of the past.

When all is said and done in the discussion we have had this morning, the administration opposes S. 466 and S. 922 for only one reason: they claim that they cost too much.

If the administration had opposed, rather than supported the $3 billion in tax incentives for the oil industry that you discussed earlier, and if the administration was proposing full social cost pricing of all energy resources, then I might be able to understand their position.

But given the administration's record on this, Mr. Chairman, I am afraid that I can only conclude that the political influence of the oil industry has held sway over the interests of the rest of us.

The proposals before the committee are too important to be held hostage by the richest country in the world claiming that it is broke. Is that not absurd? I mean, clearly, the American people are not inclined to support a general tax increase at this time. But I am convinced that the people would support a shift in our tax base away from good things like employment, and towards bad things like pollution.

For example, a $50 per ton of carbon emitted as carbon dioxide tax would raise $80 billion. Not only enough to pay for all of the proposals before this committee without even noticing the revenue lost from that, but enough to significantly reduce the most regressive parts of our income tax.

I believe that a concerted look at the entire Tax Code is a high priority and we should be looking for ways to use our Tax Code to

raise revenues in a way that also encourages environmental and productive activities.

Let me turn to two of the specific proposals. NRDC strongly endorses S. 466, the Production Tax Incentive, with one important exception. Currently, the draft of the bill gives total discretion to the Secretary of Treasury with consultation of the Secretary of Energy to add additional technologies during the first year after enactment. And given the administration's record with the double standard between the different energy industries, I am very concerned about that discretion. At the moment, there is not even any criteria for them to use in deciding what technologies to select. I think Congress should decide for itself which technologies deserve this incentive, and limit it to that in the bill.

Let me now turn to S. 922 regarding the Utility Rebate Tax. Mr. Chairman, you had some trouble understanding the logic of the Treasury's position on this issue, and I would submit that is because it is logic that only the IRS could love.

The fact of the matter is that the IRS proposal, which is to allow discounts on utility bills instead of rebates, is ineffective. At this time, hundreds of utility programs around the country are in high gear. Most of them focus on cash rebates as the most effective means of encouraging conservation.

Furthermore, the administration's proposal, to the extent that it can work at all, can only work in the residential sector. Because in a commercial and industrial sector, by and large, fuel costs are expensed and are counted against income. Therefore, a reduction in bills reduces those expenses, and there is no impact on the tax treatment.

Only your legislation can deal with this problem in an effective way, and I commend you for introducing it. I urge you to expand it to cover natural gas and water conservation, and to cover all true energy conservation investments as Senator Wirth urged this morning.

To the extent that there are any concerns about promotional practices, those should be dealt with at the State level.

Thank you very much.

Senator DASCHLE. Thank you, Dr. Lashof.

[The prepared statement of Dr. Lashof appears in the appendix.]

Senator DASCHLE. Mr. Sklar, could you give the committee a little bit of an assessment of the last 6 years of the solar industry as it relates to two facts? First, the abolition of the credits in 1985 and the consequences it had on the industry over that period of time.

And second, the price of oil. The fact that the cost of traditional sources of fossil fuel has gone down in real terms. We did not get into it today, but I would suspect the administration would argue it is far more the latter than the former that caused the demise of the solar industry. And for that reason, we over-emphasize the effect of the credits on the industry and, therefore, they really are not required. How would you respond to that?

Mr. SKLAR. Well, I think in two different ways. First, this shows a double standard of Department of Energy policy, and I think the representative here exemplified it in that when oil prices go down, there is no way market forces can be a way to instigate new tech-

nologies, so you have to compensate for that. And the way you do it, obviously, is market primers, and that is why you need tax credits.

The second response is the whole idea that the residential credit was to prime the market—which it did, and we had an industry that in 1978 had $10 million in sales, and essentially, 7 years later, was $750 million.

What that did was allow to attract capital to scale up production, and 2 years before we were due to expire, our industry came to Congress and came to the Reagan administration and said, hey, why do you not now phase down the credit—it was a 40 percent credit—and phase it out over 5 years? And we would have the manufacturing capacity in place that you would have an industry 20 times our size displacing essentially 20,000 megawatts. All right.

Senator DASCHLE. Whose figures are those?

Mr. SKLAR. They are ours. And what the administration said is, no, no, we will wait till tax reform comes in the mid-80's and we will take care of you. They took care of us all right. They just got rid of it and we imploded.

But what happened was, it put the United States at an international tactical disadvantage, because the Japanese, the Germans, the Italians did not wait around. They saw a big void in U.S. production, and they scaled up production. And so, it gets right down to the case of whether we want to be competitive in these technologies that, as Dr. Lashof said, will be the new technologies of the future.

Senator DASCHLE. Well, Dr. Lashof's comment about the international marketability of these technologies is something that I have always been very interested in and concerned about. It seems to me that other countries are forging ahead and will be in a much more competitive position at some point in the future—already are, but far more obviously so in the future.

To what degree do you see these countries effectively utilizing alternative energy sources today, and is it because of, as Senator Wirth indicated, the cost of traditional sources, fossil fuels, or is it because of the, as you relate in your prepared remarks, Dr. Lashof, the social costs of relying as we have for so long on the traditional sources?

Dr. LASHOF. Well, Mr. Chairman, I just got back from a conference in Atlanta where the Japanese Government presented a 100-year plan for arresting global warming. Now, I think 100 years too long—we do not have that much time, but the vision in that plan is impressive—and this plan was put together not by the environment agency, but by the Ministry of International Trade and Industry.

They clearly recognize that environmental technologies are the way of the future, and they are prepared to make the investments both in terms of research and development, and in terms of the domestic policy commitment to put those technologies in place and to develop a market to dominate the world market in those technologies. That is clearly what they want to do. And Germany is committed to reducing its carbon dioxide emissions 25 percent by 2005. They are going to be making major investments in new technologies in order to do that.

The administration is dragging its feet on this issue. It has been unwilling to make any commitments to reduce carbon dioxide emissions, or even to significantly slow the increase in emissions. And eventually, we are going to have to face reality that there are environmental problems that we have to deal with. We cannot bury our heads in the sand forever. When we reach that point and we are forced to make emission reductions. The question is, as Mr. Sklar said, are we going to import those technologies from Germany and Japan, or are we going to produce them here?

Senator DASCHLE. Just going back to the question, is there a substantial utilization of alternative energy sources today in these countries?

Dr. LASHOF. I cannot give you those figures. Perhaps somebody else can.

Mr. SKLAR. I would be happy to submit to the committee some of the industry data on that. We have a consortium of the eight renewable energy trade associations called the U.S. Export Council for Renewable Energy, and we have collected data on that. And it is much more aggressive and far greater in terms of where they want to go in the near term than we do, and it is from the government down.

[The information appears in the appendix.]

Senator DASCHLE. My perception and my belief has always been that there are two ways of creating market conditions, or creating the environment, within which alternative energy can be produced.

The first is to do what Senator Wirth indicated happens in these countries, whereby the punitive costs of maintaining a reliance upon fossil fuels and traditional sources is so high, it drives the market into alternatives. And that was the purpose of my question. Frankly, I have not seen that to the degree that I would have expected it. I have seen conservation. They are much more conservation-minded and effectively conserve more than we do, and the statistics bear that out. But in terms of the creation of alternatives, I have not seen the same effective demonstration of a commitment to alternatives as I see to a commitment to conservation.

The other avenue is, of course, to do what we are suggesting here, and that is to provide incentives through the Tax Code, and perhaps mandates—which is not the issue this afternoon at this hearing—but incentives to do what the punitive measures do with high prices.

But what gives me pause, frankly, just to be very candid, is that I see the results of punitive pricing for conservation. I do not see it in alternative sources. And that leads me to wonder the degree to which alternative sources can be developed solely with increased reliance upon incentives in this country since it is a given, at least for the foreseeable future, we will not see the high prices that foreign countries have.

Mr. SKLAR. Well, you may not see the high prices, but what you are seeing is increased costs to industry and the utilities sector on the environmental side. And again, as Dr. Lashof pointed out, but it is very true, is that one of the reasons you see solar-steam plants in California is that they can get a utility plant up in less than a year. And you cannot even get a gas turbine permit in a year, forget getting a plant built. And so, because our technologies are

cleaner and the cost of doing dirtier technologies are getting more and more punitive, that with little incentives like what we are asking for, is a way to just attract capital. You will see some chemistry there.

And what is unique is that these incentives are small enough that they are not going to distort the market, they are just going to attract enough capital if the due diligence works on the project itself; if the basic economics work.

So, that is the dynamic in the American economy, and the fact of the matter is that, at least on the investment credit, science can prove it. You would not have the growth in our industry without it; simple as that.

Senator DASCHLE. Dr. Lashof.

Dr. LASHOF. Yes. Mr. Chairman, I think your other point about why have we not seen lots more renewable technologies overseas with their higher prices probably comes down to a couple of factors. First, the focus of the higher energy prices there has primarily been on oil. You see very high gasoline taxes.

To the extent that renewable technologies are in a position to fill that niche, it is primarily with biomass based technologies. Europe simply is not blessed with Iowa to produce those fuels, and I think that is one reason.

The other issue is until recently, those taxes have largely been excise taxes. It is a percentage tax based on the value of the resource, and has not been environmentally based. They are moving very strongly in the direction of environmentally based energy taxes so that you are starting to see a carbon tax in several European countries, and that is going to be phasing in over time.

But to the extent that it is an excise tax, it does not favor alternatives and it just raises the overall price. And as you said, you see conservation from that, but you do not see renewable energy.

Senator DASCHLE. Mr. Karats, to what degree are you the victim of your own success? You indicated that you produce energy equivalent to serving about a million people. That exceeds the population of my whole State, so that got my attention. Would one not be able to argue, as I am sure the Energy Department has, that there is no need to provide you with incentives, you seem to be doing well enough on your own?

Mr. KARAS. Well, I think one of the things that helped our industry was in California the utilities and the Public Utilities Commission got together and offered contracts that had fixed levelized prices for 10 years back in the early 80's when energy prices were expected to get a lot higher than they did. And a lot of us were able to acquire those contracts through 1985, and have been developing under them. Those contracts with fairly attractive energy rates are no longer available, and in order for us to compete with fossil fuel fired technology, and even with our other renewable colleagues, we need the same incentives and benefits that they have.

Senator DASCHLE. A final question, and then I will ask Senator Grassley if he has any questions. The big debate, to the extent that it was debated at all this morning in the earlier witnesses' testimony, was the value of extending credits for 5 years versus 1 year.

I have maintained, obviously, that behavioral patterns are affected dramatically by the length of time a credit exists. That if you

have the security of knowing that the credit will be available for a period of time, you are going to react in a much more confident and, therefore, perhaps much more effective way in responding to the credits than you would if you had the short leash that a 1-year or 12-month period provides.

What I cannot do is quantify the degree to which that difference exists. Is there any consensus with regard to percentage of increase in utilization of the credit were we to extend from 1 to 5 years?

Mr. SKLAR. Well, I can speak on behalf of the solar industry that if we go as we have for the last 5 years on a year-to-year basis, you will not see up-scaled manufacturing facilities like this technology come on line; it will not happen. There is no way our industry can go to the financial community based on a 1-year incentive. And so, what it does is it relegates us to marginalism.

And the fact of the matter is that the way an emerging industry attracts dollars is saying that a minimum time, which frankly has to be 5 years, this is going to be in effect, and we want to attract capital to build a manufacturing plant, because this is our market.

And again, I would be happy to submit a little more data to the committee on what this means in terms of all three of our technology areas, but this 1-year-at-a-time thing is hurting us in some ways; in ways that we did not even anticipate.

Senator DASCHLE. Additional data would be welcome.

[The data appears in the appendix]

Mr. CHATLOSH. If I could speak a bit about the geothermal situation. The effect of a 1-year extension versus a 5-year extension is virtually 100 percent impact of the incentive.

In a geothermal project, it takes several years to develop the resource, several years just to build the power plant. A 1-year extension really has no impact in terms of our pricing our power that goes into a competitive bid and determines whether you are selected, or a gas project is selected. If the incentive is to have an impact on that competitive situation, it has to be a long-term incentive. Otherwise, the impact would not be included in the pricing of the electricity from the project.

Mr. KARAS. If I might speak, I would echo that, as well. The development time horizon for a wind project is several years of wind prospecting, if you will, from the time you acquire a site. And then it is perhaps a year to build the project after that. So, with a 1-year tax credit, that really will not incentives us to build any projects at all.

An additional thing with respect to wind is manufacturing. Probably in excess of half of the wind turbines in California, including the ones that we use, have been imported from outside of the United States, primarily Denmark.

And a couple of weeks ago, we had Deputy Secretary of the DOE, Henson Moore, out to our site when he was in California. And he was looking at the turbines, and he commented, where are these manufactured. We said, Denmark. And he asked why were they not made in the United States. And the answer is because you never had, right now, enough certainty that you are going to be able to produce a sufficient number of turbines in the next year to justify making the investment in plan and equipment. And to the extent that we can get some medium-term—not even long-term,

medium-term—certainty, we would dearly love to establish manufacturing over here and bring those jobs to California, or some other part of the United States.

Senator DASCHLE. Well, thank you. Senator Grassley.

Senator GRASSLEY. Thank you, Mr. Chairman. Dr. Lashof, you mentioned that you strongly supported S. 466 except for just one provision giving the Secretaries at Treasury and Energy discretion in identifying additional technology.

This was an effort on our part, in writing the legislation, to not rule out some potentially emerging technologies that maybe we could not think of right now, or we might miss. So, I would appreciate any further comments or concerns you might have about this one provision and ask you if you considered why we put that in there.

Dr. LASHOF. Well, Senator Grassley, I appreciate that, and I think that intent makes a lot of sense. The concern I have is, particularly the way it is drafted now with no criteria given to the Secretary in terms of which technologies to select, we have no guarantee that the Secretary will not select some mature technology, or some technology with very severe environmental impacts. So, we have great difficulty with a provision like that which provides blanket discretion.

Senator GRASSLEY. All right.

Dr. LASHOF. Given the administration's record on which kind of technologies they seem to favor, we do not have any confidence that they will select the technologies that you have in mind, sir.

Senator GRASSLEY. Well, maybe it is too open-ended, and maybe that is why we ought to appreciate your comment. Not just because of your comment, but maybe because of your background or expertise in this area, maybe you could help us think of some sort of guidelines, or something that we can put in the legislation. I do not want to say right now I want to do that, but maybe we ought to discuss it with you and see if you would have some suggestions.

Dr. LASHOF. Well, we would be happy to try and help with that.

Senator GRASSLEY. I have just got a couple of things that I need some comments on. These really are not hard questions so much as just begging some commentary on some aspects of earlier testimony that I have a read hard problem with.

You have heard Treasury testimony that since only 5 percent of utility fuel is made up of oil, that renewable fuels would not be very helpful. And I have said, of course, that I think that this is a very short-sighted view. But I would like one or two, or so of you to have some reaction to that. Yes, Mr. Sklar.

Mr. SKLAR. Well, Senator, first you were right in your response that 5 percent is a hell of a lot of energy, and we need to be aware of that. Secondly, from the solar energy side, and I believe also the geothermal side, that our technology also creates thermal energy, both for water heating and industrial process heat. And that is an immense amount of oil in those industry sectors as well, so it goes way beyond the 5 percent.

And lastly, the Department of Energy has to stop looking at big fixes. The approach to energy is going to be a broad range of conservation, a broad range of renewable technologies, and a broad range of cleaner, conventional technologies.

And if they always start looking at the silver bullet, we are never going to get anywhere in this country, and our dependence is going to increase. And I think that is the strongest issue I have with them.

Mr. CHATLOSH. I think another point that was left out of the comparison is the purpose of the National Energy Strategy, as I understand it, is not solely related to imported oil. To the extent that we are not displacing oil-fired generation, it may be displacing future coal plants or natural gas plants, all of which have a more profound effect on the environment than the renewables do.

Mr. KARAS. I would make a comment that beyond the clean air benefits which have been commented on, I believe the testimony today was that ANWR was going to produce something like 2 percent of the oil, and that is somehow significant, but of the total power, only 5 percent being produced by oil is not significant. I am not exactly sure that the logic follows there.

Senator GRASSLEY. All right. Some argue that there is no guarantee that the production credit would benefit either the purchasing electric utility or its customers, especially in cases where the subsidized power is purchased by a utility at avoided cost. Arguably, in these cases, the credit would only benefit the producer, and not flow through to the utility or the consumer. Do you see this as a legitimate concern or criticism?

Mr. KARAS. I think what you have to look at is, again, some of the clean air benefits, and probably national security benefits that are associated with our technologies that are not impounded, if you will, into the avoided cost. Yes, it is true those may not be passed on to the consumer—i.e., the 2-cent per kilowatt hour tax credit—but certainly the clean air and national security benefits are being passed on to the consumer.

Mr. CHATLOSH. I think it would be also very important to clarify that the avoided costs are not necessarily the prices that are paid anymore for electricity that is produced from renewables and other independent sources. That now establishes a ceiling under which all projects must bid, and the most competitive project is the one that is purchased.

So, I think the type of credits we are talking about are really an assistance that we need to remain competitive and see these projects be built as opposed to other fossil fuel projects.

Senator GRASSLEY. We have heard some arguments making the point that these tax credits would be redundant, since other laws, like maybe the Clean Air law we just passed last year, promote the use of alternative energy sources. I would like to have your comment on that. Yes.

Mr. SKLAR. Senator, I think we have to come to terms—and we have had this come up both at the administration level and in Congress in several different ways. All industries enjoy certain regulatory incentives and have to meet certain environmental guidelines. They, in themselves, still are not market primers.

My industry cannot go again and attract capital for it based on a vague environmental law on what utilities may or may not do. They have a series of options to clean themselves up. They may do alternative liquid fuels; they may do renewables; they may do conservation; they may do stack scrubbers on coal; we do not know.

And there is no way you can attract explicit capital for that. The Price Anderson Act for nuclear is one kind of government subsidy. That does not mean that they do not get other subsidies to do certain explicit things.

And I think what we are trying to say here is that if you want to attract capital in a risk-adverse society, in a financial community that does not like to take risks on new technology, this is the only way to do it.

Senator GRASSLEY. Mr. Chairman, I am done with my questioning. I want to apologize to the next panel, because they are all very important in the efforts as well a the panel we just heard from, but I am not going to be able to be here because of a 5:00 o'clock appointment that I have to keep. But do not consider my absence as any less support for your efforts, or hopefully, encouraging your effort. Well, you will have to be done in an hour, too.

Senator DASCHLE. That is right.

Senator GRASSLEY. Well, anyway, I thank you all very much. And I particularly wanted to let the next panel and you, Mr. Chairman, know why I had to be gone.

Senator DASCHLE. Well, thank you, Senator Grassley. And I have no further questions of the panel. This has been a very good discussion. I appreciate your testimony and your answers to the questions. Thank you all.

Our final panel this afternoon is comprised of Mr. Eric Vaughn, Mr. Ray Lewis, and Mr. Jeffrey Seisler. If those three gentlemen could come before us.

Gentlemen, we are pleased you could be with us and apologize to you for the length of time you have had to wait to come before the committee this afternoon. But we very much appreciate your willingness to share your thoughts with us.

Let me call upon each of you as you are listed in the schedule here.

Eric Vaughn is the President and CEO of Renewable Fuels Association. Eric, we are delighted you are here, and invite you to proceed.

STATEMENT OF ERIC VAUGHN, PRESIDENT/CEO, RENEWABLE FUELS ASSOCIATION, WASHINGTON, DC

Mr. VAUGHN. Chairman Daschle, thank you very much. It is a great pleasure to address you as Chairman Daschle. Quite a few in our industry have been waiting a long time to address you as Chairman Daschle.

My name is Eric Vaughn, and I am the president and chief executive officer of the Renewable Fuels Association. It is the domestic alternative energy trade group for the ethanol industry. In the next year or so we will have to change the description of our trade association to the ethanol and the ETBE industry association as our first ETBE production plants in the country become commercial and start manufacturing ETBE on a nationwide scale.

Chairman Daschle, I wanted to thank you at the start of this last panel just for your leadership. This is nothing new to you. When you first came to Congress more than a decade ago, one of your

first initiatives was to promote the development and the use of alternative fuels.

Your Gasohol Competitiveness Act of 1980 has been one of the bulwarks of the domestic ethanol industry during its entire 10-year period of growth in the United States.

In addition, your Clean Air Act legislation efforts last year were probably the greatest single and most prominent component of that legislative initiative. Your work, along with Senator Grassley, did not go unnoticed by all of the people in the domestic alternative energy industries.

Earlier today in the hearing, you had essentially what amounted to the Mount Rushmore, or the congressional equivalent of Mount Rushmore with alternative fuels with Senators Daschle, Grassley, Rockefeller, and Danforth, all sitting here in the hearing room.

You four leaders have probably done more to promote the development and the use of the range of alternatives than any other group of legislators in the history of this country.

We are here primarily because of your effort and your work, and our growth is largely attributed to the effort that you have put into this issue. We greatly appreciate the opportunity to testify on renewable energy and tax incentives, and specifically with reference to the domestic aspect of those incentives.

The need has never been greater than it is today to develop domestic renewable and domestic alternative energy sources. The jobs, the energy security, the environmental benefits, the economic benefits are numerous.

The Reagan-Bush administration of the 1980's painted a picture of support from time to time for domestic alternative energy, and domestic investments in energy and domestic investments in energy.

But we found with President Bush what we lacked with Mr. Reagan; a solid, consistent leader in support of domestic alternative energy initiatives. However, from the White House to the Department of Energy is more than a few blocks. It appears to be an absolute leap of faith that does not appear to have been made.

Our oil imports today and our posture with regard to oil imports are great, and they are growing. They are more costly and more damaging than most in this country—seem to understand.

Worse than that, our oil import dependence is going from the bottom of the barrel with simple crude oil to the top of the barrel as we begin to import greater and greater volumes of gasoline and finished gasoline additives like MTBE. Our import dependence is not going away. The National Energy Security plan will do virtually nothing to eliminate the type of energy insecurity that we have built into this country's energy posture.

General Schwartzkopf yesterday told the Congress that he believes that our troops will need to remain in the Middle East to protect our vital interests. He was referring specifically to oil, and not the Emir of Kuwait. The Clean Air law last year, which you so effectively shepherded through the U.S. Senate, will require 700,000 to 900,000 barrels of oil per day imported in the United States made unnecessary in our economy as a result of the increased domestic use of alternative energy sources. In fact, the ad-

ministration touted those numbers in its efforts to garner support for the clean air initiative.

The fact is that the administration appears to have forgotten those words. Now they seem to be interested in only energy diversity and looking to alternative energy imports as a way to satisfy the domestic demand for those needs. We believe the mistakes of the past with crude oil and gasoline are about to be repeated with MTBE.

I have a great deal of respect and admiration for my friend, Ray Lewis, in his efforts with the American Methanol Institute, and I hope that all of his efforts with regard to the American Methanol Institute will help us develop domestic alternative energy sources, including methanol and MTBE.

I honestly and firmly believe that this country cannot afford a continued import binge that begins to accept gasoline and two-thirds of the planned import capacity for MTBE coming from imported sources. This is an unacceptable situation. We need domestic alternative energy sources; sources from grain in Iowa and South Dakota and other States; coal from West Virginia and Missouri; and natural gas sources from Texas and Louisiana.

Energy security is not a bumper sticker topic. It is a serious issue. Unfortunately, only a few key leaders like yourself appear committed through your latest legislative initiative, S. 466, which we strongly endorse.

There is an action-oriented agenda that we incorporated in our testimony, but very briefly stated, we believe an energy investment tax credit for new and expanded ethanol facilities will do what the last ITC did for ethanol facilities: attract some $2 billion worth of private sector investment, and build some 90 ethanol production facilities.

The Fair Marketing Practices Act is a critical initiative necessary to make certain that the marketplace is available and open for all alternatives.

I realize my time is up, Mr. Chairman. I wanted to thank you and the other Senators here earlier today. And I will be happy to answer any of the questions you may have.

Senator DASCHLE. Thank you, Eric.

[The prepared statement of Mr. Vaughn appears in the appendix.]

Senator DASCHLE. Mr. Lewis.

STATEMENT OF RAYMOND A. LEWIS, PRESIDENT, AMERICAN METHANOL INSTITUTE, WASHINGTON, DC

Mr. LEWIS. Thank you, Mr. Chairman. My name is Raymond Lewis. I am president of the American Methanol Institute. I represent the majority of the methanol industry in the United States. We certainly appreciate this opportunity to testify before your committee. We appreciate your time at this hour.

This is an important issue, and we certainly feel like this very important alternative fuel needs to be included in these hearings. I look forward to working with the subcommittee on legislation to increase the use of alternative transportation fuels through equitable, cost-effective means.

AMI believes it is very important to have a number of competing alternative fuels, but that methanol, we believe, is the most promising available today if the broad considerations to include the environment, the energy security, diversity, economics, safety, performance, and consumer acceptance are all considered in a total package.

It is important to put methanol in perspective. It is not a new product. Billions of gallons have been sold for consumer uses everywhere ranging from windshield washer solvents to model airplane fuel that your kids will use in your home. Currently, methanol is stretching and improving most high-quality gasoline today, and provides the leading component to make possible reformulated gasoline. It complements the other source of oxygenates and certainly, together, has made a difference in the gasoline future, and that genie will not be put back in the bottle.

And we will all be proud of the gasoline quality that this country will have and the environment we will have as a result of that fundamental change that has been made possible by oxygenates.

Methanol also is being used to replace smoky diesel fuel for buses in many of our dirtiest cities. Methanol is the performance and safety fuel of choice for the Indy-500 race since 1965.

But beyond those kind of exotic uses, methanol can supply our fuel needs with improved efficiency today. It offers real energy security advantages; 75 percent of the methanol today is domestic. If you add our free-trading partner to the north, Canada, you approach 90 percent.

Domestic natural gas is the preferred and predominant feedstock today. It can and should grow in the future if the U.S. policy and congressional action fosters competition through fuel-neutral legislation.

The natural gas industry has only within the last 1 to 2 years made it possible to contract at reasonable premiums for feedstock for more than just a few months. Already studies are under way to restart substantial domestic capacity, as well as new plants are under construction.

Regardless of the mix between domestic and imported methanol, methanol will replace imported petroleum, and that is an important consideration, regardless of its source. The incremental option today that is being considered, other than the alternatives represented at this panel, are imported gasoline and petroleum.

And regardless of where methanol comes from, we think a lot will be domestic. It will replace imported and diversify away from imported petroleum. It will provide greater energy security because it will come from natural gas rather than from petroleum, or from other resources. And these will be from a broad mix of readily available supplies.

AMI recommends legislation based on the following principles: We support energy security that is enhanced through diversification. We think the most benefit will come from fuels that will be economically sustainable at the lowest cost for the long term. We think equity in competition around non-petroleum fuels is critical. Where subsidy is needed, it should be equitably distributed around and among the various alternatives.

With regard to S. 1178, AMI is very pleased to support this bill that was introduced and sponsored by Finance Committee members Rockefeller, Danforth, and Boren, plus others. It will provide a major step forward in furthering the national energy security and promoting clean air.

It provides a level playing field around several fuels. Opportunities for both business and general public use, and it supports a break in the "chicken-and-egg" problem by kick-starting the infrastructure and the vehicles. All the above is done while establishing caps on the vehicle and infrastructure spending to control the overall costs.

For these reasons, AMI is pleased to join with the natural gas and ethanol industry in support of this important legislation. The methanol and natural gas industries are closely connected on alternative fuels, because the U.S. methanol industry today uses 125 billion cubic feet of natural gas to produce methanol in the United State.

Substantial new prices and restarts, as I have said, of old plants are being considered. That could expand this by approximately one-third very quickly. S. 1178 will go a long way toward encouraging these studies to go forward.

We thank you, Mr. Chairman, for holding these hearings, and the members of the Finance Committee. We feel strongly that the type of jump-start incentives in this legislation are very important. We hope to work with the committee in support of these.

We are concerned that the administration has not realized the full need for the incentives, and we will continue to work closely and strongly to explore both the importance and the efficiency of this important legislation.

Thank you very much.

Senator DASCHLE. Thank you very much, Mr. Lewis.

[The prepared statement of Mr. Lewis appears in the appendix.]

Senator DASCHLE. Mr. Seisler is the executive director of the Natural Gas Vehicle Coalition in Arlington. He is here on behalf of the Natural Gas Vehicle Coalition and the American Gas Association. Mr. Seisler, thank you for coming. We are pleased you are here.

STATEMENT OF JEFFREY M. SEISLER, EXECUTIVE DIRECTOR, NATURAL GAS VEHICLE COALITION, ARLINGTON, VA, ON BEHALF OF THE NATURAL GAS VEHICLE COALITION AND THE AMERICAN GAS ASSOCIATION

Mr. SEISLER. Thank you very much for the opportunity to speak to the committee. The NGV Coalition represents about 50 of the natural gas industry local distribution companies, pipelines and suppliers, and about 55 and a growing number of the equipment manufacturers—people who make natural gas vehicles, cylinders, bus body builders—et cetera.

The American Gas Association represents about 250 utility companies that are responsible for about 85 percent of the gas moved in this country.

We are interested in promoting the use of natural gas vehicles because of the economics. Natural gas for an equivalent gallon of

about 42 to 85 cents equivalent gallon around the country. It is a very clean-burning fuel.

It is one of the safest fuels on the road, and it is a domestic fuel; 93 percent of the natural gas used in this country comes from this country, and the balance, most of it comes from Canada.

It is also, by the way, a renewable resource, one made from sources associated with biomass and landfills.

Senator DASCHLE. Mr. Seisler, excuse me. You said 93 percent of the natural gas used in this country comes from——

Mr. SEISLER. Domestic sources.

Senator DASCHLE [continuing]. Domestic sources.

Mr. SEISLER. Domestically-sourced natural gas. That is correct.

Senator DASCHLE. Are you talking about natural gas used in transportation, or used across the board?

Mr. SEISLER. All of the natural gas used in all of the sectors, 93 percent of the natural gas which accounts for about nearly 25 percent of all the energy used in the United States. Ninety-three percent is sourced in the United States. Most of the balance comes from Canada, some of it, in the form of LNG, comes from Algeria, Indonesia, and places like that.

Senator DASCHLE. I was under the impression we got some of it from Mexico.

Mr. SEISLER. We have had in the past; we will have in the future. Right now, the Mexican gas, there is not that much Mexican gas being imported today.

Senator DASCHLE. Excuse me for interrupting.

Mr. SEISLER. No, that is fine. That is fine. The coalition and the AGA believe that increased reliance on alternative fuels should have a dual public purpose. One is clean air, and the other is domestic energy security. The Alternative Fuels Incentive Act of 1991, S. 1178, would help to achieve these public purposes and the coalition and AGA strongly endorse the bill.

We commend Senator Rockefeller and the original co-sponsors of the bills, Senators Danforth, Boren, D'Amato, Bingaman, and Nickles, for their introduction of a bill that would encourage alternative fuel development virtually across the board.

And typically there are four things that are going to make alternative fuels work, and in any country around the world where alternative fuels have been successful, these four elements have been in play. One is economics—the cost differential of the fuel between the alternative fuel and the traditional fuels, typically gasoline and diesel fuel. Number two is the availability of equipment, having the vehicles to be able to run on a variety of the fuels. Third is support from the fuel suppliers.

In the case of the natural gas industry, it is support from the utility companies. We must have that to get the vehicles on the road and the fuel in the marketplace, just as the other industries here at the table, their suppliers would be required to make alternative fuels work.

And last, but not least, and probably most important is government support. And that is where S. 1178 provides incentives for not only the government support, but the other precursors to make alternative fuels work in this country.

It allows an owner of the eligible property to improve his pay back period by rapid recovery of up-front capital costs, and combined with any price-fuel differential that exists for alternative fuel. S. 1178 could provide a major economic incentive to use alternative fuels.

S. 1178 would represent the Federal Government's willingness to support attainment of the dual policy goals by offering government assistance in approving the economics of the affected vehicle owners.

And really, this is a parallel track to the Clean Air Act, as well as the to the objections in the National Energy Security policies that are being promoted right now. There have been mandates that are proposed starting in 1998 for fleet operators in the Clean Air Act, an expansion of those mandates in the national energy strategy.

And this policy for using tax incentives is a motivator for those leading age industries; the fleet operators, as well as the fuel suppliers, as an incentive and motivator to make those capital investments that are going to be required to break through what has been characterized as this "chicken-and-egg" commercialization sort of situation. You have got to have people buying vehicles, you have got to have people supplying the fuel and the incentive policies that are being promoted, in fact, go a long way to helping break through that "chicken-and-egg."

The bill would improve alternative fuel vehicle owner economics, induce the availability of alternative fuel vehicle equipment. It would encourage the investment in alternative fuel refueling infrastructure, and provide solid government support of alternative fuels policy at the Federal, State, and local levels.

We do encourage the committee to support S. 1178 as it considers tax incentives for renewable fuels. Thank you very much for this opportunity to present the information to you.

Senator DASCHLE. Thank you, Mr. Seisler.

[The prepared statement of Mr. Seisler appears in the appendix.]

Senator DASCHLE. Mr. Lewis, you had mentioned that one of the real attributes of the methanol industry is that it is offsetting imported fossil fuels. And I wholeheartedly agree to the extent that it is produced domestically.

But when it is imported, I have difficulty understanding the advantage of importing methanol over importing fossil fuels. If we are importing something, what difference does it make what the product is, we are still dependent upon a foreign source. Maybe you can clarify what you intended to say.

Mr. LEWIS. First of all, I agree with you that domestic is better. It is a matter of degree. We think that there is absolutely no reason why methanol—to the extent that there is enough gas for C and G, there will be enough gas for methanol.

The industry in the United States will be able to compete with foreign industry. The differences in freight cost, et cetera, will be sufficient to overcome the projected differences in natural gas costs, and that is a fundamental difference that has not been projected in the past.

The gas industry has believed that there would be gas at $6 very soon, and they would not contract for anything less than those

kind of very high numbers. Today, they realize that shorter term forecasts are more realistic.

Now, to the extent that methanol is imported, the predominant—I think it is around 60 percent today—comes from Canada. And we think there is a difference between coming from the Middle East and coming from Canada. Less than, I think the number is around 2 percent comes from the Middle East today. It may have in the last few months jumped up to 3 or 4. It is a very small percentage of what is coming. Most of the material that is in the Middle East today finds a home in places much closer than the United States.

So, we think there is a difference between where it comes from. A lot of it comes from Chile and Trinidad, and places like that. So, there is a second reason in that it is not all from the Middle East.

A third reason is it is not from petroleum. There is a huge excess of natural gas in the world where people went out looking for oil, they found gas instead. They capped the well because there was no way to get that product to market.

That gas is sitting there looking for a home, and it is not petroleum, it is not a cartel, it is a totally different resource. It is in gross abundance, and it is being priced at its cost to produce, not some incremental costs. And so, it represents a very, very good insurance policy for upward price mobility on natural gas imports in the form of methanol or other ways. It still amounts to payments out. It is a much more secure resource, though. To the extent it comes from Canada, it is not as bad.

Plus, we think that the domestic resource can be converted into fuel. Plus, in the case of methanol, we have got a huge resource base. The SIRI labs are exploring methanol and say they have got equally well, can make methanol from renewable just like they can ethanol. We have got a coal base that is the OPEC of the industry that acts as an insurance policy against upward price movements, et cetera, that the coal can be made into methanol.

So, there is a lot of options besides imported natural gas in the Middle East. And the people that have been trying to point that on us have primarily been the oil companies that want to say, do not let this go, because we recognize it can be successful and can really threaten the dominant petroleum base. And we think that is an unfair case.

Senator DASCHLE. Well, does AMI encourage, then, the production of methanol in foreign countries? And, in that regard, I have heard reports—and I do not know how true they may be—that some companies in this country have dismantled American plants in order to more effectively focus on sources abroad. Has that happened, and to what degree is that of concern to AMI?

Mr. LEWIS. It is interesting. One of the members of AMI had a plant that has been idle for 5 or 6 years. And the prognosis for natural gas in this country were so devastating that they did explore relocating that plant somewhere else where gas would be available.

As recent as the last few months, extensive money is being spent to—the plant was never dismantled. In fact, it was moth-balled and protected so that in the future it could be restarted. And now, there is extensive work under way to restart that plant and utilize domestic natural gas. And I submit that there are several facilities

in that position right now today. There has not been a single plant dismantled with the outlook that we see for methanol and for natural gas today. Anyone would be foolish to even consider that today. And there is none being considered.

Senator DASCHLE. Let me ask any one of the three of you to respond to a comment made by the Treasury this afternoon that—and Senator Grassley had asked the earlier panel a similar question, but I would be interested in your response—that the Clean Air Act and the administration's National Energy Strategy include provisions that already promote alternative fuel vehicles, presumably making tax incentives in this area less necessary.

Is that the case, that, given the kinds of things that have occurred in the Clean Air Act and could occur in the energy policy that is now being debated and will soon be voted upon, that that lessens or eliminates the need for energy incentives? How would you argue with Treasury in that regard?

Mr. SEISLER. Well, let me address that issue. While we are very pleased and we worked very hard to obtain the fleet mandate program that was passed in the Clean Air Act, as well as being promoted in the first instance in the Senate bill, as you said before yourself, you need a combination of policies. And on the one hand, while you have mandates are important, because you need to get the marketplace kick-started.

For example, the original equipment manufacturers—Ford, GM, Chrysler—have continually said to us, show us a market, we will show you a vehicle. And that is true for my colleagues here in the alcohol business, as well.

However, there is going to be a price to pay for clean air; there will be a price to pay for energy security. And the policy issue is how well and how fairly we spread that price across the full base of society.

And the complaint that we have heard from the fleet operators, particularly those ones that are going to be most affected by the mandate polices, are it costs us additional money to buy more expensive vehicles so we can have cleaner air.

And that is why we believe the people affected by the purchases, as well as the industries who have to spend the money to put compressor stations in or other alternative fuel station—the electricity industry has the cost of putting stations in, the methanol/ethanol industry both share a significant capital cost. We think that it is very appropriate and necessary to, at least in a minimal way, show government support to those people that are being affected by the policies to have an incentive to engage in things that will change the air quality in this country. And I think that would be equally shared by my colleagues at the table.

Mr. VAUGHN. Jeff, I guess I would echo exactly what you have just said, and one of my last points in my opening comments was going to be that we, too, strongly support and endorse the efforts of Senator Rockefeller in S. 1178 and believe it is exactly what is needed.

And I think it is an excellent complement to alternative fuels inclusions in the new Clean Air laws. We think it is actually a modest approach, but we think it can be of extreme value.

The Department of Treasury has taken the attitude that the marketplace will work when it comes to alternative fuels. When it comes to the domestic or international oil industry, there is almost no end to the subsidies or incentives that can be made available to them. I think these alternative-fuels vehicles have tremendous promise.

I guess the only thing I would like to see added to the Rockefeller initiative would be a specific 2-year pilot project in the State of South Dakota where everyone who wants to go and learn about alternative-fueled vehicles would have to spend at least a year with Dan Eisminger, executive director of the South Dakota Corn Growers. And if they did that, my guess is you would have more ethanol, and methanol, and natural gas vehicles in this country than you could shake a freeway at. But you have got a lot of people that want to see these vehicles manufactured, you want to see them on the roads, and you have got a lot of incentive out there to do it.

You just do not have the right types of incentive, and I think Senator Rockefeller's initiative, if fully enacted, would have the desired and a very effective impact on the marketplace.

Mr. LEWIS. Mr. Chairman, if I could respond to that.

Senator DASCHLE. Yes.

Mr. LEWIS. The important distinction between the administration and others like the Rockefeller proposed legislation is one of degree, one of timing. If Congress chooses to have alternative fuels and they are willing to wait 20 years, the administration's program will probably get us there if something does not change in the meantime that makes it the wrong thing, or makes something else happen.

If you want to make it happen quick enough so that your foreseeable crystal ball is realistic in the environment in which you are working on, et cetera, the subsidy should be viewed, in our opinion, as a way of determining the pace of the penetration, and our belief is it should not be used as a choice of which fuel penetrates, but the pace at which the turnover goes away from petroleum. And I think it is extremely important that we view those as something to get this thing started. And we look at subsidy, and we talk about it on the basis of how fast we want to get there and how important is it before things change to totally make it irrelevant.

Senator DASCHLE. Well, you have to wonder about the sincerity of the Department of Energy in some of their approaches to alternative energy utilization. Page 156 of the National Energy Strategy is an example. It refers to the fleet program that is proposed in the plan, but then it offers an exception.

And it says in the exception, "This subtitle does not apply to a covered person if the Secretary determines that no alternative fuel vehicles meeting the fleet requirements for that person are available for purchase, lease, or acquisition by other means when the subtitle becomes applicable to the covered person."

So you have got this huge loophole there. We want a fleet vehicle approach to the National Energy Strategy for alternative energy, but we have got a little thing here where the Secretary can just obliterate it with a signature. And you have got that all the way through the process. So, it leaves one to wonder.

Let me just give you an opportunity to respond to the administration's position stated earlier on to S. 1178. Their argument is that an income tax credit of 54 cents a gallon of alcohol is allowed to producers and blenders of alcohol fuels. In addition, an alcohol fuel credit up to 10 cents per gallon is available to small producers. Therefore, given the incentives that already exist, there is absolutely no reason for a bill like S. 1178. How would you respond?

Mr. VAUGHN. I guess there are a number of ways to start the response. The first says that the tax incentive that the Congress extended last year—adjusted last year—for ethanol and ethanol blends—for methanol, for example, for natural gas and for neat fuel applications, extended as well, and increased, by the way—were all done with the objective of enhancing our energy security and making fuels available in the marketplace in a range of applications.

The ethanol incentive was, as you know, during the course of almost of last year was under extensive scrutiny. And ultimately, the General Accounting Office and the Office of Management and Budget, even the President himself, all concluded that the ethanol tax incentive that is only available to the oil companies who decide to blend ethanol, is more than paid for—offset, if you will—by savings in other areas of the budget. In fact, the General Accounting Office analysis suggested that for the current fiscal year the Federal Government will save, net to the loss of the trust fund, some $400 to $700 million. This is one of the best money-making ideas the Federal Government has ever had in place.

So, I think the idea that you have got a tax incentive for blends—and it does work very effectively with the blends issue—but you are talking about an incentive to try to get a jump-start to the vehicles.

And the way Mr. Rockefeller has focused his initiative to specific owners to encourage them, induce them to adopt a new lifestyle; to invest in their own future; their energy future; their environmental future. Will consumers seek out those vehicles? Yes, they will, if they are made available.

Will they be made available if a tax incentive is placed before them? Many people in the industry who would be responsible for making those vehicles and servicing those cars believe this is exactly the type of jump-start necessary.

A 5-year commitment, or a multi-year commitment is the type of initiative that we need at this point. And this is what will get these vehicles on the road and get this industry going in a very efficient and effective fashion.

Mr. SEISLER. Can I make a comment in response to the administration's position as well?

Senator DASCHLE. Yes.

Mr. SEISLER. The natural gas industry has not enjoyed some of the subsidies—or any subsidies—in the past, as some of the other fuels have. And particularly in the area of R&D or, as in the ethanol business, an actual fuel subsidy.

There was one act in 1980, the Methane RD&D Act that was passed, and supposedly was supposed to give about $12 or $13 million to the natural gas industry to develop the vehicles, and about $30,000 was actually spent.

One of the beauties of the Rockefeller bill is that it is fuel neutral. And because the natural gas industry has never had any kind of assistance financially, or, in fact, support from the Federal Government, I do not think that the comments made by the gentleman from the Treasury today apply to the natural gas industry at all.

So, this is, in fact, our first shot at an opportunity to get some sort of financial assistance. And it is not so much for our industry, it is for, as Mr. Vaughn said, the customers are going to be out there, the people who are going to be required to purchase those vehicles.

The administration's argument, from our perspective, the natural gas industry and the natural gas vehicle industry, is totally not germane whatsoever.

Senator DASCHLE. Mr. Lewis.

Mr. LEWIS. Regarding your question about an excise tax, Mr. Vaughn has commented on the ethanol tax. From the gas standpoint, there is no excise tax paid on natural gas, on domestic natural gas either, except in the case where you convert it to methanol and then put it in your car.

And in that case, you pay full mileage-equivalent tax on it. And we think an equity in this area would be that if domestic natural gas goes into the car as a clean fuel, it ought not to be penalized if it goes in as a liquid methanol, as compared to if it goes in as a C and G.

And we think there ought to be an equality there. And that is one of the areas where you can encourage domestic as compared to imports, and we think that would be a reasonable thing to request.

Senator DASCHLE. Let me ask just a final question, Eric, about a statement you made in your written testimony about the impact that the investment tax credit had on the ethanol industry. You indicated that it was responsible, in your view, for the construction of about 100 facilities with production capacity of 1.2 billion gallons of ethanol. And obviously, with the loss of that particular vehicle, that tool, the question comes, what has happened to those particular facilities? And were we to reinstate the credit, what do you think would happen to the industry over a period of time, and would that enable the ethanol industry, in particular, to get back on its feet and contribute to the production of alternative fuels in a far greater way than what is happening today?

Mr. VAUGHN. There are approximately 700 million gallons worth of ethanol capacity that is in various stages of planning and development. We did a polling of all of those people involved in the planning and development stages of those facilities and asked them what is preventing you from getting these plants built.

I mean, the tax incentive has been extended, the Clean Air bill has been passed, what is it? And they said there were basically two items. One was the need for some type of tax incentive for the facilities, and the banks were looking for that type of government commitment, and it was the commitment that helped get this industry started in the early 1980's, and it was extremely successful. The second is there is a marketing issue where some major oil refiners determined that MTBE—methyl tertiary butyl ether—is their preferred oxygenate, and what they do is they manufacture a base gasoline stock with MTBE in it and put it in the common car-

rier pipeline. And the entire pipeline system becomes contaminated in the sense that you can no longer blend any other oxygenate. And as little as 2 percent MTBE in that base gasoline can cause that to happen. These two items, one investment-related and one marketplace oriented represent the greatest problems with regard to the further development of the domestic ethanol industry.

There is a 21 million gallon ethanol facility—wet facility that is in the advanced planning stages; with site selection under way in the State of South Dakota. And one of the principal problems they appear to have is having some type of commitment and energy investment tax credit has been cited as something that would be extremely helpful to them. Is it the only item? I cannot tell you that. Would it be helpful? It would be, we believe, decisive.

Of the 700 million gallons, we think between now and 1995, virtually all of it would be constructed. And we believe an energy investment tax credit would be decisive in the decisions of the financial institutions to lend the resources necessary to get those facilities up and operational.

I would also point out that not a single energy investment tax credit dollar was lost to the Federal Government by the ethanol industry when they were put out in the early 1980's. One that almost $2 billion in private sector funds were put in place to build this industry and expand it ever since. They were extremely efficient, and they were extremely effective.

Senator DASCHLE. Very well. I have no further questions. I want to thank this panel immensely for your contribution. It was an excellent discussion. You are the vanguard of the alternative energy development, and I appreciate it.

I know I speak for a lot of my colleagues in thanking you for the contribution you make not only today, but throughout the year. Thank you all.

Mr. VAUGHN. Thank you.

Mr. LEWIS. Thank you, Senator.

Senator DASCHLE. With that, this hearing will stand in recess until tomorrow morning at 9:30.

[Whereupon, the hearing was recessed at 5:35 p.m., to reconvene at 9:30 a.m. on Friday, June 14, 1991.]

ENERGY TAX INCENTIVES

FRIDAY, JUNE 14, 1991

U.S. SENATE,
SUBCOMMITTEE ON ENERGY AND
AGRICULTURAL TAXATION,
COMMITTEE ON FINANCE,
Washington, DC.

The hearing was convened, pursuant to recess, at 9:30 a.m., in room SD-215, Dirksen Senate Office Building, Hon. Tom Daschle, (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. TOM DASCHLE, A U.S. SENATOR FROM SOUTH DAKOTA, CHAIRMAN OF THE SUBCOMMITTEE

Senator DASCHLE. The hearing will come to order. We began the first of 2 days of hearings yesterday, and during the deliberation yesterday we heard from the Department of Energy and the Department of the Treasury, in addition to Senator Wirth and a number of people representing alternative energy sources.

Today we pick up where we left off. We have invited the Department of Transportation to testify, and have also requested many experts in the field of transportation, as well as energy, to testify in panels later on.

Senator Domenici and Senator Specter, however, are scheduled to testify first. I do not see that they are in the hearing room, so until they arrive, we will bypass those witnesses and call to the table Brian Clymer, the administrator of the Urban Mass Transit Administration, Department of Transportation. If Mr. Clymer is here, we will take his testimony at this time. He is not here either.

I think what we will do in that case is call to the table our first panel. Louis Gambaccini, Pat Nelson, Jim Sims, and John Yingling. If those four would come to the table, we will proceed.

Let me welcome all of you. We are delighted you could be here on time. I appreciate that. And given the order that I called you to the table, why do we not begin with Mr. Gambaccini. Is that the correct pronunciation?

Mr. GAMBACCINI. That is correct, yes.

Senator DASCHLE. The chief operations officer, the general manager of the Southeastern Pennsylvania Transportation Authority in Philadelphia. We are delighted you could be with us and invite you to proceed as you see fit.

STATEMENT OF LOUIS J. GAMBACCINI, CHIEF OPERATIONS OFFICER/GENERAL MANAGER, THE SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY, PHILADELPHIA, PA

Mr. GAMBACCINI. Thank you very much, Mr. Chairman. I am very pleased to be here. I am here representing not only the Southeastern Pennsylvania Transportation Authority, a system of many modes of public transportation that serves 1,200,000 people a day, but also the American Public Transit Association, representing some 1,000 organizations, including over 300 other transit agencies around the country.

We believe that the subject at hand is extremely timely, that is the Federal Income Tax Code treatment of employer-provided transit passes. It ties into the current debate on the Senate floor on the re-authorization of the Surface Transportation Act.

Ever since the President announced his transportation policy about a year and a half ago, a lot of talk has been given to the need for a level playing field between the modes, and particularly between highway and transit. And what we will be discussing today is probably the most dramatic example of an extreme in an unlevel playing field. I think you know, Mr. Chairman, that under the current law, if an employer provides a parking space for an employee—and this could range in big cities like Philadelphia, New York, to an expense of $300 to $500 a month—that that expense is deductible as a business expense to the employer, and not reportable as income by the recipient of that benefit.

However, if the same employer wants to provide the alternative of a transit subsidy to permit people the alternative, instead of being stuck in traffic, or contributing to air pollution and a whole host of other things, but to take a train or a bus, the law provides that up to $15 only is deductible as a business expense and exempt from income tax treatment as income.

If it moves to $15.01, none of it is deductible as an expense, all of it is reported as income—the so-called "cliff." I can think of almost no other extreme case of an unlevel playing field as this.

In effect, parking is tax free, riding transit is taxed; exactly the reverse of policies that should exist and do exist in most enlightened Western European and, indeed, most countries of the world. It is exactly contrary to the intentions of the Senate and the Clean Air Act. It contributes to congestion, it contributes to the worsening negative trade balance as a result of the increasing dependency on imported oil.

We believe that there are three things that need to be done, and need to be done urgently. That is, that Congress increase as high as possible the tax-free cap on the employer-provided transit pass above its current level of $15; two, that the "cliff" provision be removed; and three, the elimination of the tax on employer-provided vanpool benefits.

On these three counts, S. 26 scores very well. Senator Moynihan's bill, indeed, does have broad bipartisan support and would raise the cap to $60 a month and eliminate the "cliff" provision.

There are other bills in both houses of the Congress that move in similar directions. Our own Congressman from Philadelphia, Tom

Foglietta, has a bill, H.R. 1442 that would impose no cap on transit pass benefits.

Transit pass reform is good policy for many reasons. It would encourage people to get out of their cars and to ride transit. Moving people on fewer vehicles will reduce congestion, clean the air, decrease dependency on imported oil. Indeed, the President endorsed such a measure in his national energy policy, and the Senate, in its re-authorization of the Surface Transportation Act will also call for transit pass reform.

I can speak from personal experience that there is a demand, even under the severe restrictions of the current law for employer-provided transit passes. When I worked at the Port Authority, I led the effort to create the TransitChek program, a program which now is quite active and includes some 20,000 employees a month who receive transit checks.

This past Monday, I participated in a press conference with Administrator Clymer announcing a similar program being launched in Philadelphia. So far, business response has been positive.

The IRS proposal recently announced that would permit an adjustment from $15 to $21 is simply inadequate. It is a move, certainly, in the right direction, but it does not begin to have serious impact on leveling the playing field.

Moving it to $21 would still keep it far below the average value of free parking across the Nation, which is currently $58 and, furthermore, the IRS provision does not remove the "cliff." With such a limited increase in benefit, we do not think it would have any meaningful impact.

There is another significant benefit that flows from the transit pass program, and that is the significant improvement in the cooperation and understanding between the corporate community and transit providers. That has worked, in my knowledge, very, very well in New York, and we think it has great potential across the country. Indeed, one of the chairmen of one of the largest mutual life insurance companies in Philadelphia, when he became aware of some of these realities, has been working at full tilt as the chairman of a coalition to generate support for public transportation.

In closing, Mr. Chairman, may I just say that I can think of no other relatively small move in terms of dollar cost impact or policy change that has the potential for dramatic effect than this does.

Thank you very much.

Senator DASCHLE. Thank you, Mr. Gambaccini.

[The prepared statement of Mr. Gambaccini appears in the appendix.]

Senator DASCHLE. What I am going to do, since Mr. Clymer has just arrived, and because he has to leave in less than an hour, is ask him to come to the vacant microphone, if I could, and we will take his testimony at this time.

While he is doing that, Mr. Gambaccini, you mentioned that one of the three things that would be most helpful would be to increase the cap which is now at $15. Mr. Clymer is about to address that issue and indicate, as I understand it, a willingness to increase the cap, perhaps, to $21. What is your view of that?

Mr. GAMBACCINI. Well, I think as I indicated a few minutes ago that $21 is a step in the right direction, but such a paltry step that

it would not have material impact, and it is still grossly behind the benefit that applies to free parking and the highway.

So, the unlevel playing field is vast, and moving it to $21 would take a very, very tiny step in the right direction, but leaving the gap incredibly large. And again, contrary to what are and should be national policies designed to encourage the greatest use of transit for all the reasons that I indicated.

Senator DASCHLE. Mr. Clymer, we are delighted you could be with us, given your busy schedule. We appreciate your coming. I understand you do have to leave no later than 10:30. Mr. Clymer, for the record, is the Administrator of the Urban Mass Transit Administrator of the Department of Transportation.

I wanted you to have the benefit of hearing Mr. Gambaccini's comment. I do not know if, as you were walking in, you heard his comment about the cap. Perhaps as you testify you might reference his reservations about the $21 cap and provide whatever thoughts you have with regard to its need for an increase, and why the amount of $21 was selected. But we are pleased you could be here, and invite you to proceed with your testimony.

STATEMENT OF HON. BRIAN W. CLYMER, ADMINISTRATOR, URBAN MASS TRANSIT ADMINISTRATION, DEPARTMENT OF TRANSPORTATION

Mr. CLYMER. Thank you very much, Mr. Chairman. What I would like to do, with your permission, is enter my official statement for the record, make a few comments, and then take questions.

Senator DASCHLE. Without objection.

[The prepared statement of Mr. Clymer appears in the appendix.]

Mr. CLYMER. The Transit Check is a program that we have endorsed and have been supporting for a number of years. As Mr. Gambaccini mentioned, we recently announced a program in New York. There are some 2,000 employers nationwide with the Transit-Chek program affecting some 64,000 employees.

We, at the Department of Transportation, do support the idea of Transit Check. We feel that there should be some movement. We have not yet taken a position on what that dollar amount should be. Certainly the Treasury movement is a step, as Mr. Gambaccini indicated, in the right direction. That is currently under study and we are hopeful of coming out with a position relatively soon.

I think an additional point that was not mentioned is that transit passes sold through employers really represent a qualitative difference in the marketing of mass transit. The dealing through employers also turns the transit provider into a wholesaler, not just a retailer of its product.

General Motors sells millions of cars every year, not a single one of them at retail. A small percentage of fare differentials are really meaningless at a retail level, but if you can package those at a wholesale level, it may be sufficient enough to induce new behavior, such as staggered work hours, and thereby increase peak hour carrying capacity.

People who already use transit some of the time are probably the most likely customers to increase overall transit utilization—not

the hard-core auto commuter but people who already use transit on an occasional basis.

Pass programs, when managed by a sophisticated employer, will allow us to use some of the contemporary data technology to tailor the transit product better. And that is one of the things that we in transit have probably not done well. I do not know of any $20 billion a year annual business that would know less about its ultimate consumer than mass transit.

Mr. Chairman, I would be happy to answer any questions.

Senator DASCHLE. You indicate that a figure has not been set, and $21 may or may not be the cap that Treasury decides upon. Is that my understanding?

Mr. CLYMER. Yes. We are still trying to analyze that now. We produced a report done by Peat Marwick, on employer-provided transit passes which we can make available. It is some of the basis for our starting to look at what the ultimate effect of raising the transit cap would be.

As you know, one of the things that concerns us in raising it is the dollar impact on the Treasury, and ultimately trying to find some vehicle to offset that revenue loss and to keep it revenue-neutral. But certainly the idea of a level playing field is a concept we can support.

Senator DASCHLE. The Treasury proposal of $21 is pending subject to further comment by people like Mr. Gambaccini that $21 is too low. Do I take from what you have said that the possibility of an increase to something beyond $21 is still there?

Mr. CLYMER. Yes. We are looking at that, and are looking at increased amounts. Probably one of the paramount concerns is the revenue effect that it would have on the Treasury.

Senator DASCHLE. I am looking at a Table given to us by the Joint Committee on Taxation. A $60 cap, in 1992, according to the Joint Committee, produces a loss of less than $50 million and in fiscal 1993, again a loss of less than $50 million. You have to go to 1994 to get a loss of $100 million. And with a $30 cap, you go all the way through 1996 with less than $100 million lost. Does that jibe with the figures you have been given, to your knowledge?

Mr. CLYMER. Yes. Those sound approximately like the numbers we have been looking at.

Senator DASCHLE. So given what may be a tremendous advantage in incentive to those who make use of this mode of travel, does that not sound like a pretty good investment to you?

Mr. CLYMER. Yes. As I say, our primary concern is the revenue impact of it, and what vehicle we look at to try to offset that revenue impact.

Senator DASCHLE. Is that not what we are talking about here, the revenue impact?

Mr. CLYMER. That is right. What the tax cost would be to the government and how we would find an offsetting revenue source to balance that out. The numbers, in terms of the overall government budget, obviously, are not tremendously large. The question becomes how we keep it revenue-neutral.

Senator DASCHLE. But keeping something with a cost of less than $50 million over a period of several years revenue-neutral would not be one of your greatest challenges, would it?

Mr. CLYMER. I would certainly hope not.

Senator DASCHLE. So, I guess what I am saying is, there has got to be another concern. I mean, you cannot be troubled by the impediment that a figure of less than $50 million causes the Department. There has got to be something else there, right?

Mr. CLYMER. Not to my knowledge, Senator.

Senator DASCHLE. Really? That is the only concern?

Mr. CLYMER. It seems to me that, again, the major concern would be with keeping the proposal revenue-neutral.

Senator DASCHLE. Well, I would sure hope that would not be an impediment, and I will do what I can to emphasize that to the Department in the form of formal correspondence. Mr. Gambaccini, just as long as you are sitting here, what would a $60 cap do, in your opinion?

Mr. GAMBACCINI. Oh, I think it would be a major boon. In fact, it would cover the full cost of commuting for a large segment, in fact, the majority of the people, particularly in the cities. So, it would be a tremendous boost. Mr. Chairman, if I may, I would like to comment on the thrust of your question to Mr. Clymer. I think you are exactly on course. I have confronted people in the administration, particularly at Treasury, and I cannot believe the persistence on revenue-neutrality.

We are now spending in excess of $40 billion a year in negative balance of payments for imported oil, and it is rising. It is now, for the first time in history, at the 50 percent of our consumption is imported.

When you weigh the figures you cited against $40 billion a year and rising, air pollution, congestion-relief, mobility for the poor in the cities, to me, it is absolutely incredible that one does not quickly move to facilitate this kind of a change. It just boggles the imagination.

Senator DASCHLE. Well, I know people in this room have been witness to times when we have rounded things off with less than $50 million, and I do not mean to suggest that $50 million is an insignificant amount of money, but nonetheless, I think the point is clear.

I would hope that the Treasury, if they did, indeed, oppose a cap of something higher than $21, could legitimately come up with some reason other than its cost, because that is not really saleable. And I know, Mr. Clymer, that is not necessarily of your doing, but I would urge you and the Department to reconsider that $21 figure—it really is not going to be enough. It is negligible, as Mr. Gambaccini said. And frankly, I was not aware that the figures were quite as insignificant as this chart would indicate.

Now, perhaps the Department differs with the Joint Tax Committee estimate. Is that a possibility, or do you confirm what the Joint Tax Committee has given us with regard to the revenue estimates here?

Mr. CLYMER. The numbers that we have in our Peat Marwick report seem to parallel the numbers that you have been quoting this morning. Again, this is something that we are working on; we have begun an interagency dialogue. The Energy Department obviously supports the concept. The Secretary has supported the concept.

There are a number of issues that we need to address, one of the predominant ones being the revenue side. Some policy issues, in terms of where you would go to get that revenue, whether it becomes a programmatic thing that would be picked up as a programmatic expense, whether you would correspondingly tax parking, which would obviously not be very popular, and to what extent does that affect congestion management, environmental aspects and parking and transit use in non-attainment areas.

Senator DASCHLE. Another proposal made earlier by Mr. Gambaccini was that we eliminate the taxation of employer-provided vanpool benefits. Have you prepared that? Have you given any estimate as to what the cost of that provision might be and what position, if any, does the Department have with regard to that proposal?

Mr. CLYMER. No, I do not have any estimates on that. I guess the only comment I would make off the top of my head in terms of eliminating the benefits for vanpool, is that one of the things that we need to do in order to manage congestion and manage our environment in the future is literally to manage transportation.

Mass transit is certainly going to play a vital role in that. We have now defined mass transit as anything other than the single-occupant vehicle, so that vanpools obviously qualify as a mass transit vehicle.

So, I would be somewhat reticent to single out vanpools to be taxed as an offset for that. One of the things that we need to do in this country is to get more passengers, whether those passengers ride in automobiles, or trains, or buses, or carpools, or vanpools. If we can increase the number of passengers nationwide, it will have a significant effect. The average automobile now carries 1.15 riders on a daily basis. If you could increase that by one-tenth of a percentile, or one rider per every 10 cars, you take some 6 million people a day off the road. That is not an insignificant number. So that would be my only concern with singling out vans, which are a form of mass transportation, for what might be perceived as a penalty.

Senator DASCHLE. Well, I was just given the figure for that proposal from Joint Tax, and that figure is less than $10 million a year. It is confusing, I guess, to say the least, to hear advocates of mass transportation say they really are, indeed, supportive of the kinds of efforts to encourage people to use mass transportation, whether it is private in the form of a van, or public, and then to hear them argue that we cannot afford what amounts to pretty insubstantial amounts of funds to encourage that kind of thing; $10 million in one case, less than $50 million in another case.

You would think that the administration would jump on opportunities like that, not only to encourage substantially the increased utilization of those modes of travel, but to point to a compendium of different options that they are enthusiastically supporting in an effort to encourage that kind of travel.

But when you come and present, as you have, the reasons why we cannot afford a $50 million increase, or a $10 million increase, it undermines your ability to convince this committee of your determination to try to resolve some of these issues.

Mr. CLYMER. Well, I can assure you, at least from the standpoint of UMTA, we are enthusiastically pursuing the opportunity to change the tax treatment of transit, and I certainly hope that we will get these issues resolved quickly.

Senator DASCHLE. Well, I would be interested to know if you have made any decision with regard to the elimination of the taxation of employer-provided vanpool benefits?

Mr. CLYMER. No, I am not aware of that.

Senator DASCHLE. Is that an issue that is even pending in the Department?

Mr. CLYMER. To eliminate taxation?

Senator DASCHLE. Right.

Mr. CLYMER. I do not know if that has been singled out. I do not have any statistics available. I will have to find out.

Senator DASCHLE. I am not asking for statistics.

Mr. CLYMER. Yes.

Senator DASCHLE. I am just wondering. Obviously, this is an issue that has been around for awhile. Has somebody in the Department said, let us try this? I mean, what have we got to lose? Ten million dollars. We are going to be encouraging substantially somebody to climb in a van, which would help to address the problem evidenced by the statistic you did share with me, about 1.1 people per car, and it is almost a freebie. Is there an interest in pursuing that in the Department, or not?

Mr. CLYMER. We are interested in pursuing any option that has the effect of giving transit a more level playing field. So, we would certainly be happy to look into that.

Senator DASCHLE. Mr. Clymer, I have to question your sincerity when you say that, honestly. I mean, how can you be interested in and willing to pursue these things if you have not even considered it?

Mr. CLYMER. Well, I am not saying I have not considered it. I do not have data here in front of me. I have to go back and check and submit that for the record.

Senator DASCHLE. Could you do that?

Mr. CLYMER. Yes, I would be happy to.

Senator DASCHLE. All right.

[The information follows:]

The Urban Mass Transportation Administration (UMTA) is reviewing what the effects would be of eliminating the taxation of employer-provided vanpools as part of our larger effort to address the disparate treatment of employer-provided benefits for parking and transit use. (In this context, car and vanpools are considered to be a form of transit.) Specific data on the Federal revenue impacts of extending tax-free status to employer-provided vanpool benefits have not yet been compiled and analyzed.

The National Energy Strategy calls for the Federal Government to "encourage the use of mass transit in place of private, single-occupant motor vehicles for commuting by increasing the amount of tax-free transit benefits that employers may provide to employees." In addition, the National Energy Strategy report indicates that the administration will implement a series of measures to encourage increased use of carols, vanpools, and transit.

Consistent with these policies, UMTA has been examining various options for increasing tax-free transit benefits and providing incentives for ridesharing. A significant concern with any proposal of this type is that it remain revenue neutral, in accordance with the Omnibus Budget Reconciliation Act of 1990 (P.L. 101-508).

Senator DASCHLE. A final question is, what do you feel about the elimination of the "cliff" provision that makes the entire monthly benefit subject to taxation if the cap is exceeded?

Mr. CLYMER. Well, again, I think this probably falls under the category that you have just mentioned, under a de minimus category. The elimination of the $15 "cliff" probably represents only a couple of million dollars a year. Again, the concern that ultimately comes back to us is finding a vehicle to make it revenue-neutral.

Senator DASCHLE. Well, you have got three really good suggestions, it seems to me. And in all three cases, I am hearing that what are really de minimus revenue-neutrality questions are holding up what may be a real opportunity in a very serious way for a lot of people to use mass transit approaches to travel a lot more effectively.

And yet, frankly, I am not convinced that there is a whole lot of sincerity in the Department in trying to address these matters with any effectiveness.

Mr. CLYMER. We will be happy to try to work with the committee to resolve these issues.

Senator DASCHLE. Well, I have no further questions. Senator Bradley wanted me to address one concern of his, in particular. He has introduced legislation that would extend the parking exclusion to parking lots adjacent to a mass transit facility. Have you had a chance to look at this proposal, and do you have a position?

Mr. CLYMER. No, we have not specifically looked at the idea of excluding parking lots adjacent to transit. We have looked at the numbers of parking spaces nationwide, what the revenue impact of that would be.

Part of the overall policy question is do you want to tax the parking benefit? If you do, at what level, and are you doing so simply as a revenue offset, or are you doing it as part of an energy policy, or are you doing it for non-attainment areas, or as a congestion management policy. The level at which you do it may have varying impacts on each of those considerations.

Senator DASCHLE. Well, I must say I am not very satisfied with what I am hearing from the Department this morning in this regard. I think that there are some very, very significant approaches that we can take with very little loss in revenue to the Federal Treasury.

We have talked about four of them here, and in spite of the Department's assurances that they are enthusiastically seeking out ways in which to encourage people to use mass transit, they are allowing an impediment of something less than $100 million for all of these approaches, a total cost of less than $100 million, to prevent them from enthusiastically endorsing any of them.

So, I am very hopeful that in the coming months we can have a little better understanding of where the Department may be going and the degree to which they can more enthusiastically support any one of these measures in the future.

Mr. CLYMER. I am confidant we will be able to do that.

Senator DASCHLE. Thank you, Mr. Clymer.

Mr. CLYMER. Thank you very much.

Senator DASCHLE. I have no further questions.

Ms. Nelson, we appreciate your willingness to come this morning. We are delighted you could be here. For the record, Ms. Nelson is the ridesharing coordinator of Ada County Highway District in Boise, ID. She has come a long way. I am pleased that you have, and we will take your testimony at this time.

STATEMENT OF PAT NELSON, RIDESHARING COORDINATOR, ADA COUNTY HIGHWAY DISTRICT, BOISE, ID

Ms. NELSON. Thank you. Thank you, Mr. Chairman. As you said, I am the Ada County Highway District Ridesharing Coordinator. I am here also on behalf of the Association for Commuter Transportation, representing the rural States.

Even though Idaho does not have mass transportation like Los Angeles or Philadelphia, we still have transportation problems. But carpooling, vanpooling and buspooling are becoming very viable means of transportation.

The commutes are becoming longer because people are having to drive further to get to the jobs that are available, and vanpooling is one way that they are taking the opportunity to use mass transportation in the form of vanpooling.

Increasing the $15 tax-free limit will help Idaho in our vanpooling situation. About 90 percent of the people that are traveling would be covered under the $60 proposal. Exempting employer-subsidized car, van and buspools from being taxed as a fringe benefit would help our State, as well. Removing the "cliff" would also take care of the problem.

In Sun Valley, the employers up there are having a difficult time recruiting people because the housing costs are too expensive around Sun Valley, so they are recruiting people from 75 miles away.

And in the words of the Sun Valley company personnel officer, he said, "That it added insult to injury to ask these people to spend 3 hours a day to get to and from Sun Valley to work, and then have them pay tax on that trip."

He uses this as a recruitment tool. He said that a lot of these people would not even be willing to work in Sun Valley unless this was provided for them. The communities that they come from are places where there are not very many jobs, and there is not a possibility of getting a job. So, it adds to the employment base there.

In Boise, we operate a 13-van vanpool program. Most of the employers in Boise are willing to encourage their people to come to work in a vanpool or on a bus, but they cannot finance or help support financially this vanpool arrangement, because it is not covered under the tax laws.

The employers are willing to assist their employees in commute options, but they do not want to hurt the very employees that they are trying to help. And we need to level the playing field, as has been said before, between the tax benefits offered to those people that drive alone, versus the benefits available to commuters using transit, vanpooling, or carpooling.

And the sooner the Congress can act on these problems, the sooner America's employers and workers can team up to help ride-

sharing and transit. We hope the Federal Government will help us work on the same team, and I appreciate your time this morning.

Senator DASCHLE. Thank you, Ms. Nelson.

[The prepared statement of Ms. Nelson in the appendix.]

Senator DASCHLE. Mr. Sims.

Mr. SIMS. Thank you, Mr. Chairman.

Senator DASCHLE. Mr. Sims, let me be sure that, for the record, we introduce you properly. You are the president of the Commuter Transportation Services, Inc., in Los Angeles, is that correct?

Mr. SIMS. That is correct.

Senator DASCHLE. We are pleased you could be here, and invite you to proceed.

STATEMENT OF JIM SIMS, PRESIDENT, COMMUTER TRANSPORTATION SERVICES, INC., LOS ANGELES, CA

Mr. SIMS. Thank you, Mr. Chairman. We really appreciate the opportunity to be here and share with you some of our views on this issue because we think it is very important for commuters, not only in Los Angeles, but all over the country.

With your permission, I will submit my remarks for the record, and just cover a couple of things I think are very important here on this issue.

Senator DASCHLE. Without objection.

Mr. SIMS. Thank you.

[The prepared statement of Mr. Sims appears in the appendix.]

Mr. SIMS. Our company, by the way, is a private, non-profit company. We are publicly funded. We serve the five counties in the southern California area. And our job is to assist individual commuters and employers in easing the commute for their employees.

We work on the transportation demand management side of the equation. In other words, we are trying to reduce the demand on the highway system by moving people into transit, carpools, vanpools, telecommuting, working at home, staggered work hours, whatever will reduce congestion during the peak hour.

I think we are all aware of the impact of driving alone on air quality, on energy consumption, and on creating congestion in all our areas, urban and rural. But I think we sometimes overlook the fact that what this does to our ability to keep our urban areas economically viable.

In Los Angeles, for example, commuters lose about 600,000 hours a day due to congestion. We lose a similar number of hours a day in terms of moving goods and services throughout the region. So, there is a real economic impact here, as well as the air quality and energy impact.

And what we found is that commuters are rational consumers. They are affected by cost, and they are affected by time. And what we have here is Federal tax policy which tends to encourage the wrong form of commuting, that is, driving alone. It tends to discourage commuters trying other alternatives.

Now, what we found, for example, is that if the employer offers a commute allowance, which is a cash allowance, allows the commuter to make a market-driven choice in terms of whether they are going to spend that on transit, whether a carpool, whether a van-

pool, or maybe they will buy a bicycle and bicycle to work, up to 30 percent of people who were driving alone will change their mode; they will do something different. They will get out of driving alone and get out of the private automobile and do something else. This obviously has a major impact in terms of reducing congestion, and it is just allowing people as consumers to make rational choices about how they spend their money and how they manage their commute, how they save time, and how they save money.

What we would like to see is Federal tax policy which supports this concept of the level playing field of allowing commuters to make the choice that works best for them without policy that skews it in one direction.

So, we support S. 26. We support the idea of raising the cap. We support the idea of eliminating the "cliff," but we also strongly support the idea of broadening this issue beyond just transit, or even just vanpools to all types of commuter alternatives so that commuters can make these choices based upon time and cost and the considerations that seem to work for them.

So, again, we thank you for this opportunity. We appreciate the opportunity to share with you our views on this issue, and urge you to move in this direction.

Senator DASCHLE. Thank you, Mr. Sims.

Our final panelist on the first panel is Mr. John Yingling, director, business management and assistant to the vice president, administration, west coast, Capital Cities/ABC, Inc., in Los Angeles. Mr. Yingling, we are pleased you could be with us.

STATEMENT OF JOHN YINGLING, DIRECTOR, BUSINESS MANAGEMENT, AND ASSISTANT TO THE VICE PRESIDENT, ADMINISTRATION, WEST COAST, CAPITAL CITIES/ABC, INC., LOS ANGELES, CA

Mr. YINGLING. Thank you, Mr. Chairman, for this opportunity. I am John Yingling, and I am the director of business management at Capital Cities/ABC in Los Angeles. I am here representing private industry, and I am also a member of the board of directors of Commuter Transportation Services.

Vehicle emissions are the single largest source of smog in Los Angeles, so it should be no surprise that we have the worst air quality in the nation. In response, local, regional and State agencies have implemented programs to mitigate traffic, the most ambitious and far-reaching of which is the South Coast Air Quality Management District Commuter Program, officially known as Regulation 15.

The goal of Regulation 15 is to increase the average vehicle ridership, or the AVR, from the current 1.1 persons per vehicle, to 1.5 in suburban areas, and 1.75 in the central business districts.

To put this into perspective, an employer who is trying to achieve a 1.5 AVR and has 500 employees, must have about half of its employees using ridesharing alternatives.

As we know, tax policy is an effective method of changing behavior, and elements of Federal tax policy actually encourage commuters to drive alone by fully exempting the value of employer-provid-

ed parking at the work site, which, in many urban areas, can be as high as $300.

On the other hand, an employer can provide only up to $15 per month toward a mass transit subsidy. And if the threshold is exceeded, then the entire subsidy is taxable. Moreover, employer-provided carpool and vanpool subsidies are fully taxable.

Mr. Chairman, if there is only one point that I could make today and leave you with, it would be this. Not only does this policy undermine efforts to reduce traffic congestion, air pollution, and wasteful energy consumption, but its inconsistency discourages corporate initiative and represents a regressive distribution of employee benefits, particularly in urban and central business districts.

Those earning below average wages are most likely to use transit and least likely to benefit from a parking subsidy, usually the only commute benefit employers provide. As employers, we are only looking for the level playing field. Business understands that it must play a role in resolving air quality and mobility problems. A lot has already been done. In fact, Congress must do more than just mandate clean air or free-flowing traffic, it must support the efforts of the business community and to work with us rather than against us.

I urge your support of S. 26. Thank you.

Senator DASCHLE. Thank you, Mr. Yingling.

[The prepared statement of Mr. Yingling appears in the appendix.]

Senator DASCHLE. You have heard the Transportation Department give an assessment of S. 26. I asked Mr. Clymer about the three components, the tax-free cap, now $15, the "cliff" provision, and the provision to eliminate the taxation of employer-provided vanpool benefits. He indicated that it was really cost more than any other factor that was keeping them from supporting the legislation as it exists.

Do I understand this panel to fully endorse all three of those components? Is there any opposition within the panel, any misgivings, any concern about those three? To the extent that you therefore support all of them, and to the extent one can project what could actually happen were they to be adopted, what effect do you think it would have in the short-term and in the longer term? Is there a way to quantify what you estimate to be the reaction to these benefits? Would you care to guess just what impact might that have? Are we just lining the pockets of those who are availing themselves of current benefits, or do you actually think there is going to be a substantial increase in those modes of travel that could be attributed to these benefits?

Mr. GAMBACCINI. Mr. Chairman, may I take a crack at that?

Senator DASCHLE. Yes.

Mr. GAMBACCINI. I cannot quantify what the numbers would be, although we could try to do that. And if you are interested, we will endeavor to do it to the best of our ability and provide it to you for the record.

Senator DASCHLE. Could you do that? I would appreciate that.

[The information appears in the appendix.]

Mr. GAMBACCINI. But a couple of points, I think, are germane. In our city of 1,200,000 riders, 90 percent of them are within the city

proper. Forty percent of the households of that city have no access to an automobile, Mr. Chairman. We are second highest in the country in poverty.

I am advised by an expert on poverty that we have the highest concentration of poverty and distress-related problems of any city in the country. Our monthly cost that is fare for a monthly pass is $58 a month. If the subsidy goes to $60 and many business buy into it—and I am confident there will be a major move by businesses into it—what it will do for an array of problems—we have emphasized air pollution, congestion. But the array of problems that that would help to relieve, accessibility to jobs in the suburbs by the people who are captive in the ghetto—I am told, that the egress from the ghetto in our city today is worse than it has ever been in our history.

So, we are compounding the problems of high unemployment, crime, drugs, virtually every possible urban issue is benefitted by a move in this direction. We have extremely broad-based public support in our corporate community. I mentioned this gentleman who heads up our coalition. 350 organizations, virtually every major corporation and many minor corporations of the region have bought into this process.

I am confident that they will subscribe to this in very large numbers. It will be a major boon to a move to the use of public transportation, the encouragement and incentives.

And I am not limiting it just to the poor. It will be a significant boon also to facilitate movement—we have looked at per capita capacity on limited access highways, and we are 25th out of 25 in the country. We are fifth largest in population, fourth highest in transit usage, in last place—at least up to the 25th level that we looked.

So the potential for easing the problems of mobility and encouraging through incentives, rather than draconian measures, which L.A. is compelled to do, given their extreme circumstances, that this represents—again, it absolutely boggles my mind that it is such a minor cost for such potential, that we must persevere and succeed in this.

Senator DASCHLE. Mr. Gambaccini, I was handed a note while you were giving what I consider to be a very eloquent response to my question. UMTA did a study that was mentioned by Mr. Clymer earlier—the Peat Marwick study completed last November.

The study concluded that raising the monthly tax-free transit allowance from $15 to $60 would increase transit ridership by about 16 percent and would increase employer participation by 27 percent. That may even be a conservative estimate. But what is your reaction to Peat Marwick's study?

Mr. GAMBACCINI. Well, as I recall also—and I did not remember that part of it—but I think their estimates of cost are lower than the figures you cited before. But I believe that the numbers that they cite on potential, at least in the Philadelphia area, are distinctly on the low side.

Senator DASCHLE. Anyone care to address that?

Mr. SIMS. Mr. Chairman, I think they are on the low side. I also think that it is maybe a narrow reading of the economic impacts of this issue that we have before us. For example, if everyone in the

State of California, who now drives alone, left their car at home 1 day a week, we could save the equivalent of all the petroleum we were importing from Iraq and Kuwait before the war, and this is a major impact.

We work with about 3,700 employers in the L.A. area, and they tell us that they are having increasing difficulty moving goods and services, they are losing hundreds of millions of dollars a year because employees are late due to congestion; recruiting is difficult. So, in terms of our economic capacity to compete and to be efficient, there is an impact there as well.

Now, those things are not easily measured, but I think we realize that those impacts are there and they need to be considered in making a policy judgment as to which things we encourage or discourage with our tax policy.

Senator DASCHLE. Mr. Gambaccini.

Mr. GAMBACCINI. Mr. Chairman, another thought. It is not directly on point, but it is related. About a month ago, a report was unveiled on the economic impacts of the continued deterioration of our system to the State of Pennsylvania and to the region. And the conclusion of the report—this was done by Urban Institute, Cambridge Systematics, under the guidance of a corporate advisory committee, a steering committee comprised of the head of the building trades union, the head of the Provident Mutual Life Insurance Co., the head of the Federal Reserve Bank, so it was completely removed from SEPTA orientation.

The conclusion of that report said that there would be a $9 return to the State in economic benefits for every dollar invested, and that the failure to reinvest in this transit system would lead to massive loss of jobs and population to the State. The head of the Federal Reserve Bank said that the methodology was the cutting edge of econometric modeling, and that the conclusions, if anything, were conservatively stated.

If we can work on all aspects of the problem, the potential during a recession to try to give economic boon to our cities, open up the ghettos, realize that kind of return on investment, I cannot understand why, at the national level, there is no understanding of how these things link up and of such extreme importance that is has to the Nation, and we continue to do all the wrong things.

Senator DASCHLE. Let me just ask one final question. We have focused for the most part on the economic consequences of this. Mention has been made of other benefits. I am particularly interested in the health benefits of the increased utilization of mass transit. Have any of you seen data that might reflect on the value of improved health benefits from increased ridership in mass transit? Mr. Sims.

Mr. SIMS. Mr. Chairman, if I may, I think we are familiar with the health benefits related to improved air quality, but some studies that we have done—in fact, some continuing data that we collect—tell us that when commuters make the decision to move out of the private automobile, the single largest factor is stress.

They tell us that stress of the commute is what makes them most susceptible to changing behavior from driving alone into transit carpooling or vanpooling. Thirty-seven percent is a pretty high

number, and I think that plays out in terms of health benefits broader than just the air quality benefits.

Senator DASCHLE. The lack of stress in riding mass transit, as opposed to what you experience in being plugged up in a traffic jam somewhere?

Mr. SIMS. That is right. As a driver of a single-occupant auto, you are out there by yourself, trying to deal with it by yourself. In transit vanpools, carpools, you have somebody there with you.

Senator DASCHLE. Thirty-seven percent of the people who move to mass transit indicate that stress is the reason why they do so. Is that it?

Mr. SIMS. Thirty-seven percent of the people who tell us that they would consider moving to transit or carpooling site stress of driving alone as a major reason.

Senator DASCHLE. So, it is not just physical health, but mental health, as well.

Mr. SIMS. That is right.

Senator DASCHLE. Yes, Mr. Gambaccini.

Mr. GAMBACCINI. There are other aspects of the health problem. Automobile deaths account for 45,000 deaths a year. We had our worst accident on our most heavily used line. 160,000 people a day use that line. We had our worst accident in the history of that line in 70 years that killed four people.

Certainly that is something we are desperately trying to avoid in terms of recurrence, but the dramatic, the vast difference in accidents, injuries, and deaths on the highway compared with transit is—the data is readily available, and it is extreme in its consequences.

Senator DASCHLE. Mr. Yingling.

Mr. YINGLING. Very, very briefly, Mr. Chairman. We have several people within the ABC organization who have come to me or to one of the people who have responsibility for ridesharing and say that, I am sorry, I have to quit. I can no longer commute 2 hours to work in my private automobile each way each day. In certain cases, it has affected their physical health. It has certainly affected their emotional health. And in a couple of cases, it was affecting their marriage to a point where it would no longer last. We have been able to put these people into vanpools or other ridesharing mass transit areas, and they continue to be happy, productive, and on-time employees.

Senator DASCHLE. Well, you all make a very compelling case for the proposed legislation, and I cannot thank you enough. You have said it succinctly, and you have said it very convincingly, and I appreciate it. We will see that our colleagues have the benefit of your thinking on these issues and, again, I appreciate it.

I see our colleague, Senator Specter is here, and given his schedule, I will ask him if he would be willing to come to the table at this time. Arlen Specter has been a real advocate of many of these issues, and a brilliant student in the Senate in other areas, as well. We are delighted he could share some of his time with us this morning. Arlen, we are delighted you are here, and invite you to proceed with your testimony.

STATEMENT OF HON. ARLEN SPECTER, A U.S. SENATOR FROM PENNSYLVANIA

Senator SPECTER. Thank you very much, Mr. Chairman. I very much appreciate your courtesies this morning. You and I have worked closely in the U.S. Senate since the 1986 election, and I appreciate the work you are doing on the Finance Committee.

I had introduced legislation, Mr. Chairman, relating to energy conservation, and a few of these issues touch on tax matters. I would ask that the full text of my statement be included in the record, and I will make only a few brief comments this morning, because I know you have many other witnesses to hear.

Senator DASCHLE. Without objection.

[The prepared statement of Senator Specter appears in the appendix.]

Senator SPECTER. This conservation legislation, Mr. Chairman, was developed after discussions that I had last year with Mr. George Frampton, president of the Wilderness Society, who brought to my attention the unfortunate consequence that there were a number of sensible and potentially effective energy conservation ideas which had either gone unnoticed, or had been subsumed in the larger, more complex legislation. So, with the assistance of the Alliance to Save Energy, I introduced S. 326 which has some very fundamental ideas which I think most would agree with. And I am optimist that they can be included in the broader energy package which will soon come to the Senate floor, having been reported out of the Energy Committee.

There are three provisions which have tax implications. One provision, Section 602 of my bill, would require that an employer not take a tax deduction in connection with providing a parking space to an employee unless the employer offers the employee a cash allowance equal to the fair market value of the parking place.

This could bring additional revenue to the Treasury, because there are many employers who offer parking places, and it is not included as income to the employee, and it really ought to be if there was a very strict analysis of the underlying facts of the matter.

The thrust here is not to get involved in that issue, except as it relates to saving energy. You had a very distinguished panel just here, including Mr. Louis Gambaccini, who is the head of the SEPTA system for southeastern Pennsylvania. If car drivers did not have a free parking place available, they would be less likely to drive. If they received a cash allowance in lieu of using a parking place, that would be an incentive not to drive. I think that would be a revenue addition which this committee is always looking for, because most proposals involve revenue losses.

Senator DASCHLE. Arlen, let me just stop you on that one, and ask you how you respond to the administration's argument that the value of the subsidy is too difficult to calculate, that it would be difficult both at the employer level and at the Treasury level to calculate just what the impact of that might be. And for that reason, they say it is not something they can currently support. How would you respond to that?

Senator SPECTER. I would respond to that, Mr. Chairman, by simply pointing out that you can walk across the street and find out what it costs for monthly parking, just as simple as it can be. The employer gives an employee free parking, and across the street there is a garage. The garage has a monthly parking rate. I think that would not even tax OMB.

Senator DASCHLE. Sounds reasonable enough to me.

Senator SPECTER. I do not think that would pose any real problem. Mr. Chairman, that is the kind of response which you and I see all too often. Whenever there is an idea proposed, there is an instantaneous knee-jerk reaction "it cannot be done, because it is administratively difficult." But I think that one really is an easy one. I have a free parking spot in the Federal building in Philadelphia. Across the street there is monthly parking. You could determine it very easily. I used to pay for monthly parking when I practiced law. It would not provide any difficulty.

Mr. Chairman, very briefly, the two other provisions which are in my legislation involve Section 301, which would allow a $100 tax credit for people who use oil heat who retrofit for energy-efficient oil burners.

There are 12 million homes in America which use oil to heat; only 40 percent have been retrofitted with energy-efficient oil burners. My suggestion in the legislation is that consumers who install qualified oil retrofit conservation measures be eligible for a tax credit, not to exceed $100.

The other proposal, Mr. Chairman, would provide that when a utility gives a rebate to a taxpayer for energy conservation, that that rebate not be included in the gross income of the customer.

It would be my thinking, Mr. Chairman, that the three provisions taken in total would probably be revenue-beneficial to the government. I wanted to stop by this morning. This is a tough morning for the Senate. As you know, Mr. Chairman, we were in session until a little after 1:00 a.m. last night on the highway bill. The Republican caucus is meeting now and I am about to go there, but I consider this a very important measure and would very much appreciate the consideration of the subcommittee and the full committee so that when this measure reaches the floor, we do not have the customary concern that it is a Finance Committee matter, et cetera. So, I very much welcome this opportunity to appear this morning.

Senator DASCHLE. Well, let me applaud you for your diligence and for the kind of proposals you have laid before the committee. I think all three of them warrant the support of everyone interested in finding ways with which to encourage conservation.

We talked about this yesterday, but Pepco has just recently sent out a brochure discussing the possibility of rebates and giving a number of very elaborate reasons why conservation is important and why rebates are a good thing, but they have a line at the end of the brochure which says, "The IRS considers rebates for conservation measures taxable."

I would think that once consumers got through all of this material and came to that line, this thing would go in the basket. And what is incredible to me is that if Pepco would adjust their rates as a result of their rebate, that is not taxable. So, consumers can get a

benefit through reduced rates. They simply cannot get a benefit if that rebate is in the form of a check to the participant. And for the life of me, I cannot understand the difference. But again, your provision makes eminent good sense, and I am hopeful that we can make the necessary correction through legislation, if required.

Senator SPECTER. Mr. Chairman, that is one which the government might well have a well-reasoned argument that it is administratively impossible to make individual rate changes to accomplish what would be a non-taxable event.

Senator DASCHLE. I would think so.

Senator SPECTER. You just could not work that through backwards so that it makes sense if there is a rebate, for bookkeeping purposes, not to tax it. We all know that a little tax saving provides a great incentive. People love tax savings, and so do I.

Senator DASCHLE. Thank you. Thank you for coming.

Senator SPECTER. Thank you very much, Mr. Chairman.

Senator DASCHLE. Our final panel is comprised of Scott Parsley, the assistant general manager for member services at East River Electric Power Cooperative in Madison, SD; Mr. Thomas Morron, the vice president of customer services and marketing of Edison Electric Institute in Washington; Mr. Michael German, the senior vice president of American Gas Association; Mr. John Sullivan, deputy executive director of the American Water Works Association; and Commissioner Edward Meyers, the District of Columbia Public Service Commission here in Washington.

Gentlemen, we are pleased you could be with us. I will start with Mr. Parsley for two reasons—first, because he is listed first on the schedule, and second, because he is a dear friend and a good constituent of mine. Scott Parsley.

STATEMENT OF SCOTT PARSLEY, ASSISTANT GENERAL MANAGER FOR MEMBER SERVICES, EAST RIVER ELECTRIC POWER COOPERATIVE, INC., MADISON, SD, ON BEHALF OF THE NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION

Mr. PARSLEY. Thank you, Mr. Chairman. I am here this morning in support of S. 922, and I am representing East River Electric Power Cooperative, our member systems, and also the National Rural Electric Power Cooperative Association.

East River Electric Power Cooperative is a wholesale generating and transmission cooperative located in Madison, SD. East River provides wholesale power to 25 rural electric cooperatives, and one municipal electric system located in eastern South Dakota, and western Minnesota. These member systems, in turn, provide retail electric service to approximately 65,000 rural accounts, affecting over 250,000 people in a 36,000 square mile area.

East River purchases its power supply needs from two sources; the Western Area Power Administration, a Federal power marketing administration, and Basin Electric Power Cooperative located in Bismarck, ND.

Each of these power suppliers provide 50 percent of the member system power supply needs. East River owns and operates the power delivery system consisting of 2,500 miles of high-voltage

transmission line and 200 substations to deliver power to its 26-member systems.

After several years of study, East River and its member systems installed a system-wide, low frequency load management system in 1984. The load management system which covers one of the largest geographic areas in the United States allows East River to directly control end-consumers' heating, air conditioning, water heating, irrigation, demand limiters, grain dryers, and industrial loads directly from its operation center located in Madison.

Since the early 1960's, East River and its member systems have been actively engaged in energy conservation programs. East River and its member systems have provided residential energy audits and low interest weatherization loans to retail consumers to encourage maximum benefit from the electric resource available.

In 1978, Congress passed the National Energy Conservation Policy Act. This act called for conservation measures including weatherization, load management, and replacement of inefficient heating equipment in both residential and commercial applications.

In 1985, the Western Area Power Administration added a new requirement to its wholesale power contracts mandating formal conservation and renewable energy efforts. This contract provision requires WAPA customers, such as East River, to implement energy conservation programs and provide WAPA with annual compliance reports.

We are also aware that the National Energy Strategy released by the Department of Energy in December 1990 identified improved energy efficiency and conservation as goals which enjoy strong public support, and are important elements to this country's future energy security.

Based on the experiences that we have had, we have reached the following conclusions: East River and its member systems have invested $12,100,00 in rebates over the past 6½ years to achieve 70,000 kilowatts of controlled demand, which is about 20 percent of our peak demand. We provided 100 million kilowatt hours of off-peak energy sales, which is approximately 7 percent of our total energy sales, and savings to consumers of over $33 million in power costs.

The use of rebates has had a significant effect on these peak reductions and energy conservation results. As a result, we believe rebates are an important ingredient to a successful conservation and load management program. Subjecting rebates to income tax as prescribed by the Internal Revenue Service Technical Advice Memorandum, in our opinion, is counterproductive, and is a contradiction to both the 1978 National Energy Conservation Policy Act and the 1985 WAPA Conservation and Renewable Energy Program. Rebates will continue to be an important tool for utilities to encourage consumers to use the most energy-efficient equipment available. New electric equipment available for space heating and water heating, which is the most energy-efficient equipment, is generally more expensive then less efficient equipment.

The average level of utility rebates is small. In our case, the average is slightly less than $500 per rebate. If forced to report these rebates as income, both utilities and consumers will be subjected to significant new administrative burdens. We believe this paper

chase will yield few, if any, tax revenues, while imposing significant costs to administer, while reducing energy conservation results.

Rebates are successfully used in other industries as a marketing technique. The Federal Government should not single out utility rebates which are targeted to improve energy efficiency for taxation. We believe that if we are to achieve conservation as mandated by Federal law, and work towards energy independence in this country, exempting rebates from Federal taxation is essential.

Mr. CHAIRMAN, I THANK YOU FOR YOUR TIME THIS MORNING. I would be happy to answer any questions.

Senator DASCHLE. Thank you very much, Scott.

[The prepared statement of Mr. Parsley appears in the appendix.]

Senator DASCHLE. Mr. Morron.

STATEMENT OF THOMAS MORRON, VICE PRESIDENT, CUSTOMER SERVICES AND MARKETING, EDISON ELECTRIC INSTITUTE, WASHINGTON, DC, ON BEHALF OF THE EDISON ELECTRIC INSTITUTE AND THE AMERICAN PUBLIC POWER ASSOCIATION

Mr. MORRON. Thank you, Mr. Chairman. My name is Tom Morron. I am vice president of customer services and marketing for the Edison Electric Institute, and on behalf of EEI, as well as the American Public Power Association, I wish to thank the subcommittee for the opportunity to appear before you today in support of S. 922.

I do have a prepared written statement that I would ask be appended to the record.

Senator DASCHLE. Without objection.

[The prepared statement of Mr. Morron appears in the appendix.]

Mr. MORRON. Thank you, sir. The Edison Electric Institute is the association of investor-owned electric companies in the United States. Our members serve some 98 percent of all customers served by that particular segment of the industry. They generate approximately 78 percent of all the electricity used in the United States and serve some 74 percent of all electric consumers in the Nation.

The American Public Power Association is the national association representing more than 1,750 Federal, State, and municipally-owned electric utilities.

Mr. Chairman, the electric utility industry strongly supports effective energy efficiency as a major element of national energy policy. Effective utilization of our energy resources should be of primary concern in the development of our Nation's energy, environmental, economic, and tax policies.

For almost 20 years now, the electric utility industry has been a leader in promoting energy efficiency through various methods. Approximately 500 electric utilities in the United States are sponsoring today over 1,300 demand-side programs nationwide involving over 15 million individual customers.

These programs involve more than $1.3 billion of investment dollars per year, and continues to rise. These programs have deferred the need for over 20,000 megawatts of new generating capacity ad-

ditions, reduced the Nation's summer peak demand by 3.7 percent, and reduced overall kilowatt hour usage by 1.3 percent.

By the year 2000, it is expected that these programs and those that follow will defer some 45,000 megawatts of new capacity additions, reduce the summer peak demand by some 6.7 percent, and reduce overall kilowatt hour usage by 3 percent.

Despite this success, one very important aspect of many energy efficiency programs, that is, the use of financial incentives to encourage the purchase of energy-efficient equipment and measures, is jeopardized by a 1989 ruling of the Internal Revenue Service. The Service has taken the position that these incentives paid by a utility should be included in a customer's gross income.

Specifically, in the 1989 Technical Advise Memorandum, the IRS indicated that a rebate paid by a rural electric co-op to a customer to reduce electricity usage at a specific time was taxable income. Taxing these incentives reduces their value to the customer, and thereby reduces participation rates in energy-efficient programs.

Therefore, the electric utility industry strongly supports legislation such as S. 922, clarifying that payments by utilities to encourage energy efficiency are not taxable to the utility customer.

Electricity provides two paths to achieving energy efficiency gains: upgrading and electrification. Upgrading is replacing installed electric equipment with more efficient electric equipment. An example would be the substitution of more efficient motors or lighting for existing equipment.

Electrification, on the other hand, is expanding the use of electricity in new applications, or the replacement of fossil-fired equipment with more efficient electric equipment for existing applications. A very simple example here, Mr. Chairman, would be the increased use of the ubiquitous fax machine and teleconferencing in substitution for physical movement of people and documents.

These innovations and the technological changes brought on by the use of electricity improve our Nation's economic efficiency, and increase electricity's importance as a factor of production.

Our Nation's tax policies should be consistent with and support the Nation's energy and environmental goals. Tax laws should be clarified to provide specific exclusion from gross income for incentives provided by a public utility to residential, commercial, and industrial customers for the purchase or installation of energy conservation measures. We therefore strongly support S. 922.

Energy efficiency programs sponsored by our industry are of critical importance to our Nation's well-being. These programs enable our industry to control the consumption of electricity by curtailing use at certain times, and/or by promoting the efficient consumption of electricity. This allows our industry to delay or avoid the construction of expensive new generating facilities which ultimately benefit customers, environment, and nation alike. Rebate programs are a widely-used underpinning of these efforts to conserve energy in a cost-effective manner. Taxing these rebates is a major disincentive to invest in conservation, because customers are generally unwilling to pay more at the time of purchase to save more money in the long run.

Moreover, it is unclear to us and makes no sense from a national tax policy standpoint why direct rebates to customers should be

taxable, while bill credits are not. We believe substance, and not form, should prevail.

In conclusion, Mr. Chairman, I would call your attention to the fact that while the members of APPA and RECA and EEI all compete vigorously with one another in the marketplace, attempts to seek a legislative market advantage have been put aside in this hearing, and we are unanimous in our opinion that S. 922 should be enacted as soon as possible.

While it has taken almost 2 years to get the American Gas Association to stand with us, the fact that both the electric and the gas industries, as well as their regulators, are before you today advocating a change in the Nation's tax policy regarding rebates to our customers speaks highly of the value of S.922 in reconciling the energy and tax policies of this country.

Thank you, Mr. Chairman.

Senator DASCHLE. Thank you, Mr. Morron.

Mr. Sullivan.

STATEMENT OF JOHN H. SULLIVAN, DEPUTY EXECUTIVE DIRECTOR, AMERICAN WATER WORKS ASSOCIATION, WASHINGTON, DC

Mr. SULLIVAN. Good morning, Mr. Chairman. I am Jack Sullivan, representing the American Water Works Association. The American Water Works Association is the largest professional organization for drinking water in the world.

I am also representing today the National Association of Water Companies, which is a trade organization that represents about 300 of the largest investor-owned water supply systems in the country.

Our interest today is conservation of water, and to emphasize that, I have on the desk before you a little magnetic stick-on device that I ask you to take home and put on your refrigerator. It might emphasize the importance of conservation and water, and conservation can make a difference.

The United States today is facing a major problem in the availability of source water from both a quality standpoint, and a quantity standpoint, because of geographic differences. Conservation can make a difference. The simple use of low-flow plumbing devices in the home can save about 10 percent of the domestic water use in the country. Now, that is a double-whammy, because you save it on the drinking water side; you also save it big time on the waste water side.

So, the amount of money you are talking about is billions in capital investment. It does make a difference. We need to consider it, and the tax incentives to encourage the public to do this must be there. As has been mentioned on the electric side, we also encourage the incentives on the water side.

In that particular regard, we would strongly recommend the exclusion from gross income of the value of these incentives through subsidized water conservation. We like the language in S. 741 and S. 743, because it specifically addresses the water conservation issue.

You have my official testimony for the record, Mr. Chairman. I would be happy to answer any questions at the conclusion of the panel.

Senator DASCHLE. Thank you, Mr. Sullivan.

[The prepared statement of Mr. Sullivan appears in the appendix.]

Senator DASCHLE. Mr. Meyers.

STATEMENT OF COMMISSIONER EDWARD M. MEYERS, DISTRICT OF COLUMBIA PUBLIC SERVICE COMMISSION, WASHINGTON, DC, ON BEHALF OF THE NATIONAL ASSOCIATION OF REGULATORY UTILITY COMMISSIONERS

Mr. MEYERS. Thank you, Mr. Chairman. I am Ed Meyers. I am a public service commissioner here in the District, and I also serve on the Committee on Energy Conservation of the National Association of Regulatory Utility Commissioners, or NARUC, on whose behalf I am here today. NARUC certainly supports S. 922, and we applaud the authors of this bill, yourself and Senator Grassley, for such progressive legislation.

NARUC, since 1989, has supported the enactment of legislation to overturn the IRS's Technical Advice Memorandum which has the effect of taxing the cash rebates for energy conservation in excess of $600. We have a resolution that we have adopted, and we have provided that for the record, along with my written testimony.

Mr. Chairman, NARUC is extremely concerned that utilities across the Nation and consumers are receiving what we regard as mixed signals. As we all recognize, one of the best ways to discourage an activity is to tax it. And it seems clear that the national government thus far has sought to discourage energy conservation through the taxation of the conservation rebates. Meanwhile, on the other hand, we at the State Regulatory Commissions seek to promote energy conservation through the conservation rebates, so there is a conflict that you have. And so, these mixed signals undoubtedly create excessive confusion among utilities and their customers.

NARUC strongly believes in a balanced National Energy Strategy. We note that Congress has given oil and gas producers hundreds of millions of dollars in tax incentives in order to stimulate the production of more domestic energy supplies.

We would like to ask you to take a look at the Tax Code, as you have, Mr. Chairman, to look at how the Tax Code can be used for energy conservation, and certainly not to use the Tax Code to discourage energy conservation, as is the case with the incredible current Federal tax policy.

According to the Edison Electric Institute, my colleague on the panel here testified that these conservation programs have already helped to defer an estimated $20 billion worth of generating capacity to date. And so, who pays for that? The rate-payer. We are talking about considerable savings to the rate-payer and to citizens through these rebates. These rebates are a very common practice in the electric and gas industries. You noted some measures that Pepco has adopted. They cover all the customer classes. Pepco has

rebates for energy-efficient lighting, for heating, ventilation and cooling equipment, for water heating retrofits, and so forth. But when you read that bottom line on Pepco's conservation promotional ads that you pointed out, Senator, the taxation of the rebates has to be a knock-out punch if somebody is considering whether or not to take advantage of these rebates. Most people do not like to pay taxes too much.

There are 500 gas and electric utilities other than Pepco who offer these worthwhile rebate programs, and they will have second thoughts—the utilities and the consumers as well—once it truly sinks in that the IRS is taxing the rebates. It is a relatively new form of taxation.

Now, relatively recently this week, we understand that the IRS has reaffirmed an exemption from Federal taxation for utility bill discounts that electricity consumers receive for energy conservation investments. I completely agree with Senator Specter's remarks earlier regarding the administrative difficulty of the bill discount approach. Commercial and industrial customers use their energy bills as deductions from gross income. Therefore, a policy that encourages bill discounts over cash rebates would only serve to increase these large energy users' taxable income, and thus take away much of their incentive to invest in energy-efficient devices.

We believe that the Congress has an excellent opportunity to correct this very serious deficiency in the proposed National Energy Strategy legislation. We, of course, recognize that there will be a minor revenue loss, but compared to that $20 billion figure of savings to rate-payers across the country, we think that is relatively insignificant.

So, we think that S. 922 is good energy policy. It is good tax policy. We would like to see the Tax Code used to discourage harmful activity, and certainly not to discourage the obviously beneficial activities.

I agree with some of the earlier witnesses on the other bill. They were kind of incredulous that we would have such a tax, and I would certainly feel that way about taxing energy conservation.

And finally, I would just like to say that it is an inconsistency to have the Clean Air Act on the one hand, and then to turn around and tax energy conservation on the other hand. Frankly, it just does not make a lot of sense.

But I commend you and the committee for this legislation and the opportunity to appear here today, and we would be glad to work with you on the legislation. And that concludes my statement.

Senator DASCHLE. Thank you, Mr. Meyers.

[The prepared statement of Mr. Meyers appears in the appendix.]

Senator DASCHLE. Mr. German, we are pleased you could be with us.

Mr. GERMAN. Sorry, Mr. Chairman. I was working on my statement until the last minute, and I guess I cut it a little too thin.

Senator DASCHLE. It has got to be a pretty good statement then. [Laughter.]

I introduced you earlier, but for the record, Mr. Michael German is the senior vice president of the American Gas Association. We invite you to proceed.

STATEMENT OF MICHAEL I. GERMAN, SENIOR VICE PRESIDENT, AMERICAN GAS ASSOCIATION, ARLINGTON, VA

Mr. GERMAN. Thank you, Mr. Chairman. Good morning. I am Michael German, senior vice president of the American Gas Association. The AGA represents approximately 250 natural gas distribution and transmission companies that account for approximately 85 percent of the total natural gas deliveries in this country.

I am pleased to appear before this subcommittee this morning to present AGA's views in support of Federal tax proposals which would encourage consumers of natural gas, electricity, and water to use our Nation's resources more efficiently.

Specifically, AGA supports legislation that would exclude rebates, subsidies, and/or discounts from the gross income of customers participating in utility conservation programs. We believe a primary objective of our Nation's energy policy should be to increase energy efficiency, and that treating rebates as taxable income would work in the opposite direction.

Such tax policy will lower participation by customers in energy efficiency programs, and thus, work at cross-purposes to our Nation's energy policy. Rebates are a part of the natural gas industry's efforts to assist customers in implementing conservation programs. Taxing these rebates reduces their value. We believe that it is illogical for the Federal Tax Code to discourage private sector programs to induce energy-efficient behavior.

Now, we also believe that Federal conservation policies should promote true energy efficiency. While this seems like a simple truism, some programs actually result in increased energy use.

The most appropriate means of measuring energy efficiency is by resource energy analysis, or full-cycle energy trajectory. This approach measures the amount of energy used or lost during the extraction, processing, transportation, conversion, distribution, and use of all forms of energy.

The efficiency measured by this approach is the total amount of energy that must be produced to satisfy a specific end-use energy in demand, recognizing that energy is lost at many points along the cycle.

For example, nearly four BTUs—British Thermal Units—of coal or oil are needed in order to provide one BTU of useful hot water from an electric water heater. A natural gas water heater would require approximately one-half this amount of energy. Legislative proposals should favor resource conservation measures with high energy efficiency cycles. Now, the third point we want to make is natural gas should be included in Federal tax conservation legislation. Since natural gas constitutes a significant portion of energy use in the residential and commercial sectors, we believe natural gas should be included in any Federal tax incentive program aimed at encouraging conservation.

As drafted, S. 922 would not allow consumers to exclude from their gross income any rebate received from a gas utility for conservation measures. This oversight should be corrected. Natural gas is an economic fuel for consumer use in residential, commercial, and industrial sectors.

Natural gas has significant cost advantages relative to other forms of energy for both space and water heating in many regions of the country. Legislation that excludes electric rebates from taxable income but leave gas rebates taxable could have the unintended effect of encouraging energy waste.

Not only is natural gas inherently efficient, it is also clean. Natural gas possesses inherent chemical properties which make it the cleanest-burning fossil fuel and its use produces only a fraction of the emissions that are produced by oil and coal. Natural gas combustion emits less of every criteria pollutant identified by the National Ambient Air Quality Standards compared to other fossil fuels. Natural gas emits virtually no sulfur dioxide or particulates, and less nitrogen oxide than other fossil fuels. The direct use of natural gas in end-use applications thus provides two environmental benefits. One, less pollution per BTUs, and two, less energy used to do the same job.

Again, AGA supports legislation to exclude utility rebates from consumer income taxes. Such legislation sends a strong, pro-efficiency message to the States. Federal tax legislation should be used to guide State regulators to consider consumer costs, energy efficiency, and full-cycle environmental effects of such practices. Any promotional practice should further the public policy goal of promoting energy efficiency.

Customer rebates for equipment that would result in inefficient use of our Nation's energy resources should not be eligible for tax benefits. Tax legislation which does not differentiate between true energy efficiency and practices that increase overall energy use could be misconstrued by State regulatory bodies as a tacit endorsement of all utility promotional practices.

We believe that State public commissions are in the best position to determine what a true energy efficiency program is in their area. We hope this legislation would encourage commissions to approve true energy efficiency measures that look at the entire energy cycle from production to burner tip. Such a message not only insures the Treasury is getting value for the lost revenue, but also reduces revenue foregone. Simply stated, AGA believes that if the Treasury wants to buy energy conservation it should get what it pays for.

One final point. AGA reiterates its strong and continued support of S. 1178, the Alternative Fuels Incentive Act of 1991, as introduced by Senator Jay Rockefeller. This bill would help the Nation meet mandates of the Clean Air Act amendments of 1990, and reduce our reliance on imported oil. That concludes my testimony.

Thank you very much for your indulgence, and I am sorry I was late.

Senator DASCHLE. Thank you, Mr. German.

[The prepared statement of Mr. German appears in the appendix.]

Senator DASCHLE. You timed that just perfectly. You must have been practicing. If Mr. Clymer were still here, I do not want to put words in his mouth, but my guess is he might say well, are you really telling me that there is a difference between bill discounts and cash rebates? I mean, it is a reduction either way, so what is the difference? I mean, it has got to be their feeling. Obviously, IRS

has a specific concern about the payment and the receipt of that payment and, therefore, the tax status of a cash transfer. But aside from the legal question that the IRS poses, how do you respond to that? What is the difference between a bill discount and a cash rebate? It is all money, right? Anyone want to address it? Mr. Meyers?

Mr. MEYERS. Well, yes, I could address that. If your expenses are higher—and a utility bill is an expense—then a policy that encourages bill discounts over cash rebates would serve to increase the taxable income.

Treating the investment as a reduction in a customer's energy bills lowers the amount of deduction from gross income. So, your expenses are lower. Your taxable income is, therefore, higher. Whereas if you get a rebate, there is no adverse tax consequence on it whatsoever, if your bill passes.

Senator DASCHLE. Mr. Morron.

Mr. MORRON. Yes, Mr. Chairman. I think there is a broader perspective that needs to be brought to bear here. Many of EEI's and APPA's members handle these incentive payments differently. Some are using bill credits, some are using coupons, some are using direct checks, and so on, and so forth; there are a variety of means.

But Mr. Chairman, I submit in all candor, a rose by any other name is still a rose. I really cannot fathom the intricacies of the IRS's opinion on this matter. I would like to see the full range of options be made available to the utilities in promoting energy efficiency in their service territory, whether it is a bill credit, or whether it is a $50 bill in a customer's hand.

Senator DASCHLE. If the choice were policy-neutral, would you care to guess as to the avenue most utility companies would take? Would they favor a cash rebate over a rate reduction for any particular reason, and if so, why? Scott?

Mr. PARSLEY. Mr. Chairman, I will speak about our situation as a cooperative. We are owned by the people that we serve, so it is a matter of them getting their own money back one way or the other.

I think just recently in the Washington Post there was a survey done addressing this very issue which dealt with how do people in the utility purchasing side of things look at lower rates as compared to cash rebates for conservation measures.

And quite significantly, the consumer said we want our money up front, we do not way to pay for it, we do not want to get our return over a long period of time.

We find that, too, in our experience, that people are much more acceptable to more energy-efficient equipment which, as I said in my testimony, does have a higher price tag because it is more energy efficient to get that assistance up front, help with the purchase price of the equipment rather than waiting over a period of 10 or 15 years to get that cost back through lower rates.

Senator DASCHLE. Mr. Meyers.

Mr. MEYERS. Yes, sir. I think it would take a fairly sophisticated computer program to adjust consumers' electricity bills for their individual actions. There could be one, two, three, four different actions that a consumer might take over the course of several months, and each one of these would have to be adjusted somehow

in the bill. There would inevitably be errors in the bill, and they would have to be removed. I think the rebate is just so much more of a cleaner measure. It also helps the consumer out because when he or she is deciding whether to purchase an energy-efficient appliance as opposed to one that has a cheaper price tag, for example, which is not as efficient, and the consumer gets that cash rebate right on the spot or the dealer can hand the person a rebate form, it makes a whale of a difference to the consumer. So it is a better approach.

Senator DASCHLE. Well, I fully appreciate getting a check in the mail. I have once in a while had that luxury myself. But I would think from a company's standpoint it really would not make that much difference. You figure out what the check would be, you either send them the check, or you take that same amount of money and on a separate line state that, because you have conserved, you are going to see a deduction in your rate of this much; here is your bill. So, it would seem to me to be six of one, half dozen of another for a utility company, even though it would have fairly significant consequences perception-wise for the consumer. Is that not right, or is there more to it? Mr. Sullivan.

Mr. SULLIVAN. Well, let me speak, Mr. Chairman, from the standpoint of the water industry. First of all, I think you have to understand that it is a huge industry. You are talking about 60,000 community water systems with over 200,000 public water systems.

You have to have flexibility in a wide range of incentives that they can use. Some of those incentives may be for the purchase of low-flow devices. I agree with the electric evaluation that the consumer would want the money up front to do that.

Senator DASCHLE. Yes, Mr. Morron.

Mr. MORRON. Mr. Chairman, one further comment here in my plea for the widest number of options. It is true in residential and small commercial customer applications that the vast consumer preference is for the "check in my hand." But as my testimony points out, and as the testimony of my colleague from the D.C. Commission points out, for a lot of commercial, and certainly for industrial customers, the direct bill credit has adverse tax consequences to the receiving entity. Consequently, many utilities will offer a variety of options, being mindful that that may create a tax problem for industrial and larger commercial customers. That is why we think, as I say, a rose by any other name. We just would like to have the full range of options available to satisfy customer needs and wants.

Senator DASCHLE. Mr. German.

Mr. GERMAN. I would support what has been said here. For residential customers, the actual impact from a tax perspective would not be that different between a discount and a rebate, but there is a big perception and ability to sell difference between getting a check in the mail and getting a discount over time.

From a commercial/industrial perspective, I would support what was said by the D.C. Commission, which is if you are reducing expenses in the form of a discount, that is going to have a tax impact just as if you were increasing income from a rebate. And you seem to have flip sides of the same coin with the discount program where you are not going to see much in the way of a difference.

So, for commercial/industrial, a discount does not have the value. For residential, it does not have that perception inducement. And when you add those two up together, what is in your bill relative to what has been offered is not the same. I would also like to point out that in your bill you do not currently have gas, and we would be very happy to see that in your bill.

Senator DASCHLE. You pointed that out. In fact, this is the second time you have pointed that out. [Laughter.]

Obviously, there is a reason. And I hate to even bring up this reason given what we have discussed this morning, especially with Mr. Clymer. But the reason it was not included this year was revenue. But unlike Mr. Clymer, I am more than willing to take another look.

The revenue estimate we were given for including gas, electricity, and water over a 5-year period of time was $4.2 billion in cost. The estimate for including only electricity this year is $538 million over 5 years. So, we are at almost about one-eighth of the cost of the comprehensive approach we offered last year.

But let me just ask the panel, if you were to include gas, would that be an additional incentive? Is it worth the cost, in your view? I mean, would anybody take Mr. German's position that gas very definitely ought to be included, or can you make the case that, perhaps, it is not that big a deal? Mr. Sullivan.

Mr. SULLIVAN. I think you should include gas. I would say electric, gas, and water—and I emphasize and water, Mr. Chairman. [Laughter.]

Senator DASCHLE. Well, we left out water in our calculation, and that took us a billion dollars down from the $4.2 billion estimate; not nearly the consequences of leaving gas out. But they each have a revenue cost.

But I personally would think that if you really want to offer a comprehensive approach, eliminating any one is, in my view, somewhat difficult to justify. But I would be happy to hear a differing point of view on that, if there is one. Mr. Morron.

Mr. MORRON. I was going to surprise my colleague from the AGA by supporting his plea for inclusion. I think the broader question, Mr. Chairman, is one of U.S. energy policy being coincident with U.S. tax policy and we are currently faced with a situation where tax policy is clearly working against energy conservation, energy efficiency efforts in the United States.

I agree that the cost, as Senator Dirksen used to say, "We are now talking serious money." They may be large, but what are the larger costs of having that disincentive in place over those same 5 years?

Senator DASCHLE. Let me ask you this. We have focused a lot on consumption, through what would normally be described as the daily use of any one of these commodities. What about the tax incentives that may or may not exist as an architect begins preparing his architectural plans, and for the contractor who has to put it together? It seems to me there is a quantum opportunity here for additional conservation incentives. Could any one of you address the degree to which you think changes in tax policy could assist us in that regard? Scott.

Mr. PARSLEY. Mr. Chairman, that is a very timely question. We are right now in the throes of developing our marketing plan for our organization and one of the issues that we have discussed a great deal is how do we get input before an architect or a builder goes out and lays out a housing development, how do we get to that person to talk about energy efficiency, talk about the programs that we have available?

And that is going to be a concentrated effort that we are going to make, generally. And builders have told us this themselves, I mean, they are looking at the bottom line, and they want to put in the cheapest equipment that they can find in terms of heating and cooling and give no thought at all to conservation in terms of building those homes.

And that is an issue, and we are talking to them about weatherization and just a whole range of issues that we think are extremely important, and obviously, through our rebate program, we would make those rebates available, and hopefully, tax-free rebates with the passage of S. 922.

Senator DASCHLE. So, a tax-free rebate would even help in this approach, as well. When you are talking about fundamental building construction, utilization of certain kinds of equipment, the rebate may be, would you not say, the single most effective way to encourage the utilization of more energy-efficient measures Mr. Sullivan?

Mr. SULLIVAN. Yes, Mr. Chairman, I think it would. I think it is an incentive not only from a financial standpoint and from the conservation standpoint, it is also an incentive for education. If the public is educated in these regards, you will see changes because the public will drive those changes in building codes, in architectural codes, and things of this nature.

One of the catch phrases that is beginning to come into vogue with water conservation is zeroscape landscaping, and that is beginning to take hold. Not only in the Southwest, also in places like Florida. Maybe even in Washington, DC.

Senator DASCHLE. Mr. German.

Mr. GERMAN. It would be my understanding of the bill as drafted that if State commissions which seem to be very aggressive with integrated resource planning and demand-side management were to allow incentives and/or rebates for new communities and builders relative to new construction, that would be eligible under your bill. So, I think that you will see as a result of this bill the new housing market, the new commercial market being affected fairly broadly. So, I would say as a starting point, the integration of DSM at the State level with what we have here will impact, in a fairly broad way, new communities.

Senator DASCHLE. Mr. Morron.

Mr. MORRON. Mr. Chairman, the Edison Electric Institute operates a rather extensive major accounts network across the United States dealing with commercial firms who operate in multi-State jurisdictions, Sears, McDonald's, Marriott, people of that nature.

And I can tell you from personal experience that when we sit down with their facilities planners, the availability of a rebate for a specific high-efficiency piece of equipment is a very, very strong inducement to them at the headquarters level.

So that denying them the availability of that rebate either because the utility ceases the program given its taxable nature, or because of their own tax situation, would deny us that inducement. And that would be a very serious problem for us.

Senator DASCHLE. Let me go back to my earlier question. Here you have got sophisticated builders and sophisticated customers who pay thousands of dollars for accounting services on a monthly basis. Are you saying that even for these sophisticated customers the rebate rather than rate reduction would be an incentive for them to participate more enthusiastically in conservation programs?

Mr. MORRON. Yes, Mr. Chairman, that is precisely what I am saying.

Senator DASCHLE. Is there any disagreement here?

Mr. PARSLEY. Mr. Chairman, I would like to just expand a little bit on that question that you asked earlier. And I think it partially relates to what the utility is trying to do.

And in our case, with our load management system, we are not only offering rebates, but there is a rate incentive, also. Because if you are willing to take that load off of our peak, then you get a rate incentive.

The important thing from out standpoint is where we look at our existing all-electric customers that have baseboard heat, or some other type of heat, for example, that cannot be controlled, for us to implement a good, efficient energy conservation program, we need to go into that home with something that can be controlled. And we had a major marketing effort in 1986, 1987, and 1988 to put in what we call electrothermal storage units in those all-electric homes. What you are doing is you are going to a consumer and you are saying, look, you have a heating system, you stay warm in the winter, but we want to change it. And if you do not say we want to help you pay for that, they are not going to be very responsive to that.

So, it is just another tool for us to introduce into that living environment without diminishing the quality of life for that consumer; a product that will allow us to practice energy conservation and helping them purchase that is a critical part of that practice.

Senator DASCHLE. Let me ask, is the practice of volume discounts totally gone now? You do not see any volume discount rate structures anymore, do you? Scott.

Mr. PARSLEY. There are some step rate structures, you know, so much for the first 500 kilowatt hours, so much for the second 500.

Senator DASCHLE. Where it is actually a declining rate, or decrease in value?

Mr. PARSLEY. Yes. I mean, I would not quite go this far, but it is declining somewhat, yes.

Senator DASCHLE. Why?

Mr. PARSLEY. Well, for those people who have that kind of usage. Now, our rates are flat rates if they are willing to control that load, so there is no declining block there.

Senator DASCHLE. No. But you are saying there are declining blocks in certain circumstances?

Mr. PARSLEY. Some. Some in certain circumstances.

Senator DASCHLE. Is that not counterproductive?

Mr. PARSLEY. Yes.

Senator DASCHLE. Mr. Sullivan.

Mr. SULLIVAN. Mr. Chairman, yes. There are still some declining block rates in the water industry. That is why I emphasized the size of the water industry and the diversity. We certainly do not advocate that and it is fading, and hopefully fading fast.

Senator DASCHLE. Well, why would anybody do it? I mean, for heaven's sake, I can understand——

Mr. SULLIVAN. As an incentive to development. Some of the municipalities are doing it as an incentive to development.

Senator DASCHLE. Is that right?

Mr. SULLIVAN. Water and power is a very critical incentive to industrial development in some communities.

Senator DASCHLE. Well, it just sounds to me like that defeats the whole purpose. Whatever marginal amount we may be able to conserve, our increase in conservation is offset by an association or a utility's own rate structure which, on the other hand, encourages further consumption.

Mr. Meyers.

Mr. MEYERS. Yes, sir. We do not think there are very many declining block promotional rate structures anymore. Certainly in the larger, urbanized States, and I am sure in many of the other States, we have managed to rid ourselves of those declining block promotional rate structures a long time ago.

There may be a few remnants. For example, we may have a utility with excess capacity that was very aggressive in persuading its State commission that there is a cost-based need to promote the use of electricity, but I think it is very rare at this stage.

Senator DASCHLE. If I were to introduce legislation which would use a tax disincentive, in other words, somehow tax a utility of any kind that would still be promoting volume discounts, or a structure that would encourage increases in volume, could I get unanimous support at this table for that? Mr. Morron?

Mr. MORRON. Perhaps not, Mr. Chairman. Because in looking at rate design, there is more than just the energy component of that rate to consider, most especially in the industrial and commercial categories where demand is the chief driver of the cost. I would agree with my colleague from the National Association of Regulatory Utility Commissioners that there are still some promotionally-oriented or economic development-oriented rate incentives prevalent in the United States, but very few of them. The fact of the matter is that this pricing signal that is most efficacious, as it were, in driving energy management and conservation on the part of a commercial and industrial customer is not the energy component, but is rather the demand component.

You, in introducing or passing such legislation, would also outlaw time-of-use rates, which give you a specific off-peak incentive rate that is much less, both in demand and in energy to encourage you to use power off-peak. So we would have to be very careful not to eliminate that load management tool in such a bill.

Senator DASCHLE. You are the expert, Mr. Morron, but what I am saying is, in the aggregate, if a utility is encouraging greater consumption of gas, electricity, water, you name it, not at any certain time of the day, but in the aggregate, that if rates go down

with increases in utilization by volume, that that would be something, as a matter of Federal tax policy in the interest of conservation, we would want to oppose through a provision to tax that kind of management technique. I get the impression that there would still be opposition at the table to that? Mr. German.

Mr. GERMAN. You have actually raised an area of very great relevance to the bill under discussion, and that is some of the measures that would be eligible for not being taxable would be promotional practices and would actually increase overall energy use. And that is an area we tried to focus on in our statement.

There are, for example, in many regions of this country rates to all electric customers that do not put in gas. And then you would be giving a rebate under this bill, conceivably, to homeowners in those communities who put electric water heaters, or electric heat pumps.

You have to be very careful when crafting tax legislation that you do not provide a competitive advantage to one industry or another. And that was a very high concern here relative to the bill, and that goes to the issue of what is conservation and how do you separate demand charges from commodity charges.

But a major concern that we have had with this legislation is that some promotional practices that increased energy consumption could slip in under this bill and be included. And the way of getting the cost of this bill down may be to say that all of the practices that would be eligible would have to conserve energy.

Senator DASCHLE. Mr. Morron.

Mr. MORRON. Mr. Chairman, I think the question has to be addressed as to whether we are willing as a nation to condemn any increase in energy use. I, for one, sir, am not, and am prepared to furnish today studies conducted for the Edison Electric Institute showing the beneficial uses of electricity in displacing fossil-fuel technologies in the marketplace that have net environmental advantages.

And yes, they do increase the consumption of electricity, but they also decrease product cost, environmental damage, and make us a more competitive nation. I would be glad to submit those studies for your perusal, sir, in making a judgment as to whether it is appropriate to condemn any increase in the usage of electricity. There are many beneficial uses that need promoting.

Senator DASCHLE. Absolutely, and in no way do I want my questioning to be considered contrary to what you just said. I would not want anybody to imply that, but yet, at the same time, I see myself thinking, well, every time I go home I get asked, how is it that the Federal Government can encourage tobacco production and spend millions of dollars every year to tell people not to smoke?

I mean, are we encouraging electricity consumption at the same time we are offering incentives, paying good taxpayer dollars out there, to encourage conservation? Fortunately, it is not as ominous as tobacco, but it is the same concept here. Are we doing one thing on the one hand and doing exactly the opposite on the other, and how do we meld public policy to see that that kind of thing does not happen? How can we encourage our economy to continue to grow and provide the incentives to see that that growth is there at

the same time we squeeze very ounce of utility out of whatever energy source we are using?

As I look to Germany and Japan, they have been remarkable in their ability to see increases in activity and decreases in energy consumption; substantial progress has been made in the last 20 years in that regard.

Some might argue it is just a function of cost. I think it has to go beyond that, and we got into that a little bit yesterday. But I do not think we are doing a very good job of encouraging productivity, but also encouraging conservation. And that is really what this hearing is all about.

Mr. Meyers.

Mr. MEYERS. Yes, sir. I am not sure what NARUC's official position on the potential policy initiative that you are just now advancing would be, so I would have to just speak for myself.

I think it is an exceptionally worthwhile endeavor to look into this matter, because rate structures have historically been used to promote electricity, and they still are in some areas of the country. I think that a hearing on this matter would serve to gather some of the data which would give us answers to the questions that you have raised.

Senator DASCHLE. Scott.

Mr. PARSLEY. I guess one other element I would like to throw into this discussion is the operation of a power plant. And when we operate our power plants, one of the main measurements that we look at is load factor; how much of the plant's output are we actually using over a 24-hour period of time. And that is a critical measure in both the plant's operation and efficiency in terms of generating electricity.

That is one of the purposes that declining block rates are offered is to make better, more efficient use of that generating source that we have available to us. Because if you start up a power plant and only run it at 35 percent of its capacity, it is not the most efficient use of our energy resources that we have available to us. So, the more we can load those base load plants up, the more efficient those plants become.

So, that is a key component to the past use of declining block rates. We are seeing areas now where we are having capacity deficits, so you are seeing fewer and fewer of those types of rates available. But in those areas where there is capacity surpluses, it is probably used more.

Senator DASCHLE. Mr. Morron.

Mr. MORRON. Mr. Chairman, I confess the notion that you propose here is counter-intuitive, but the two are not mutually exclusive. As I pointed out in my testimony and again in my oral statement, you can have both.

You can have a national energy policy which, as you put it, wrings the very last ounce of energy out of a specific unit to get a job done, while at the same time promoting those increases in the use of that fuel or others that increase productivity or contribute to environmental improvement, and so on, and so forth; also other socially worthwhile goals.

The two are not, in my mind, at least, mutually inconsistent, although I confess the apparent contradiction is probably fairly strong in the public's mind.

Senator DASCHLE. Well, we may get into that more at another hearing. I think it would be useful to examine that in greater detail and maybe even bring some of you back if you have the opportunity to come back.

Mr. MORRON. Be glad to.

Senator DASCHLE. This has been a very enlightening and interesting panel for me, personally. I have a lot to learn in this area, and as the new chairman of this subcommittee, I know that there is a lot more information to gather and a lot more people to talk to. But you have given me a tremendous appreciation of the complexity of the issue, and in spite of the complexity, you seem to have a good deal of consensus about the direction this country ought to take.

So, again, let me thank each of our panel members for his contribution. We appreciate your being here this morning.

For the record, Senator Moynihan could not be here this morning, and he asked that his statement be put in the record in regard to many of the issues we discussed this morning.

[The prepared statement of Senator Moynihan appears in the appendix.]

Senator DASCHLE. If people could take your seats, we will finish the hearing.

We are very pleased that our colleague from New Mexico, Senator Domenici, could be here with us. He is no stranger to this committee, and certainly not a stranger to the issue. He has been a leader in energy and conservation matters for decades now, and we are delighted that he could be with us this morning. Pete, we invite you to proceed as you see fit.

STATEMENT OF HON. PETE V. DOMENICI, A U.S. SENATOR FROM NEW MEXICO

Senator DOMENICI. Thank you, Mr. Chairman. Thank you very much. I want to tell you I clearly intended to be here earlier this morning, but we were trying to resolve issues surrounding the highway bill, and I had a responsibility to explain the Budget Act ramifications to some of my colleagues directly involved with the highway bill. It took a lot longer than I thought. So, I am sorry I am late.

I welcome the opportunity to talk with you about an issue which I think one might say, "its time has come." Clearly, in the United States, when we talk about our energy policy, the word "conservation" is almost synonymous now with any plan, any policy of any significance.

I am going to introduce very soon a Conservation and Energy Efficiency Act. This bill is going to change the tax treatment of certain conservation rebates. I think we all have seen ads in local newspapers about conservation rebates, "Buy a heat pump and get a $300 rebate or a credit on your utility bill," an ad might say. "Buy your family a new stove and get $150 back."

I have included up here on this easel just one example of what already exists. I thought it might be helpful to you, Mr. Chairman, to know that what I am recommending is already partially in existence. This energy efficiency guide is part of current labeling requirements. The appliance on the left costs an average of $205 to operate each year. At the bottom of the label you see the red star telling consumers that if this appliance is purchased under a utility rebate program, the rebate would be tax free. This is the concept behind the legislation I am talking about.

In contrast, the label for the appliance on the left costs $437 per year to operate and would not be eligible for a tax-free rebate. The point and distinction is that not all rebates are created equal. Not all rebates result in energy efficiency and conservation. Under my legislation only rebates that result in efficiency and conservation would get tax-free treatment. So, not all rebates ought to be treated equally under the Tax Code.

Some utility companies offer rebates to encourage consumers to purchase the most efficient appliances available in the marketplace, and that these are good programs. And this bill that I am introducing, and this concept would provide a tax incentive for that type of rebate.

But other promotions and proposals have programs to get people to buy one type of appliance instead of another with the objective of selling more energy. My bill would not provide a tax incentive for that type of promotional program. They may have a rebate, but that rebate is not a rebate that encouraged or caused energy savings; it might be exactly the opposite.

I think you know that the history of rebates is very mixed. It used to be that all conservation rebates were not taxed as income to the consumer.

That changed in February 1989 when the Internal Revenue Service issued a Technical Advice Memorandum, and on June 11, 1991, the Service issued a second opinion, reversed itself for certain electric non-refundable rebates.

Now, I am just giving you my opinion, and obviously, I could be wrong. But I think both rulings were half right, and half wrong. It is wrong to tax rebates on the most energy-efficient equipment in the marketplace.

It is correct to tax rebates on equipment that results in a greater energy consumption than necessary, especially in these type budgetary times. And that is what I alluded to awhile ago.

So, the bill and the concept that will be included in my bill would correct that portion in the ruling that is misguided and restore a favorable treatment for true energy conservation rebates. That is, if they are rebates that are conservation, clearly, they should not be taxable. The Department of Energy has developed these minimum energy conservation standards for appliances. This is not new, and clearly, it is the kind of thing you can rely on in this committee and make reference to, and they are going to be in the marketplace.

In fact, under the new Energy Policy Act, there will even be more mandates of that type. A Trade Commission's appliance labeling program already exists, and that could facilitate this targeted approach to energy conservation rebates. Under the Energy Policy

and Conservation Act of 1975, the disclosure of energy efficiency and the cost to operate various appliances is a requirement. These are most of the same appliances that are subject to the rebate programs.

These two charts have two labels for two comparable water heaters, one cost $205 a year to operate. The other costs $437 to operate. The label for this energy-efficient water heater could read, "This appliance qualifies for a tax-free rebate if purchased under a Utility Rebate Program." Clearly, that is the same product. One is very efficient, the other is not. I think it is time we proceed along those lines, and I would ask that the remainder of my testimony be made a part of the record. But I want to clarify, my bill is not in yet. It will be introduced this afternoon, so I do not have a bill number for you. I could not get over there this morning to do it. Thank you.

[The prepared statement of Senator Domenici appears in the appendix.]

Senator DASCHLE. Thank you, Pete. You would be pleased to know that virtually every witness who came before this subcommittee in the last 2 days has said that the rebate is the single most effective way to encourage conservation, that there is no other way that they could tell that would have a more effective way to encourage the lower utilization of commodities.

Let me ask you this. Does this include electricity, gas, and water, or is it just electricity?

Senator DOMENICI. Electricity and gas.

Senator DASCHLE. Not water. All right. Very good.

Senator DOMENICI. Let me ask, Mr. Chairman. You said the witnesses say that that is the most efficient way, but you are concerned because there is not a consistency in the IRS interpretations?

Senator DASCHLE. Exactly. The IRS has already ruled, as you indicated, that consumers would be eligible for a rebate reduction if it were part of a rate. In other words, reducing their billing, a billing discount, is acceptable; a cash rebate is not. And that discrepancy is what I assume your bill addresses, and I think it is very meritorious. I am anxious to see your bill, and would likely be a cosponsor.

Senator DOMENICI. Very fine. Thank you very much, Mr. Chairman.

Senator DASCHLE. Very good. Thank you for coming. With that, the hearing is adjourned.

[Whereupon, the hearing was adjourned at 11:38 a.m.]

APPENDIX

ADDITIONAL MATERIAL SUBMITTED

PREPARED STATEMENT OF BRIAN CHATLOSH

Mr. Chairman and Members of the Committee, I want to thank you for the opportunity to testify before you today on the expiring geothermal energy tax credit.

My name is Brian Chatlosh and I am Manager of Planning and Development at Oxbow Geothermal Corporation. Today, however, I am testifying on behalf of the Geothermal Resources Association ("GRA"). The GRA consists of companies involved in the development and operation of geothermal resources. We focus on issues of interest to geothermal development and, of course, a major issue is the pending expiration of the energy investment tax credit for geothermal property. It is therefore not surprising that we support a permanent or multi-year extension of the geothermal energy tax credit, the latter of which has been proposed by you, Mr. Chairman, in S. 141.

In my statement, I would like to address the existing credit and also the impact of the alternative minimum tax on the actual utilization of the credit. With regard to the latter, we offer our strong support of the Chairman's bill, S. 1157, which would alleviate the negative impact of the alternative minimum tax on the utilization of the energy tax credits. Finally, I would like to briefly comment on the proposed production tax credits.

Prior to commenting on such tax issues, however, I would like to put geothermal resources in perspective. Put succinctly, the geothermal resource has vast potential, but faces significant challenges. If successfully developed, it can provide a secure and renewable source of power that is not subject to disruptions in world oil markets and is compatible with the environment.

Geothermal energy is environmentally benign, a fact which is of particular importance in an era of the Clean Air Act, global warming and concern over the greenhouse effect stemming from excessive carbon emissions and other harmful pollutants being emitted into the atmosphere. Coal fired plants put 17 million pounds of CO_2 into the air for every megawatt/hour of electricity, while an oil fired plant will emit 13 million pounds. However, a state-of-the-art flash steam geothermal plant emits only 10,500 pounds, and binary plants produce essentially no air emissions of any kind. Similar striking comparisons can be made to other forms of emissions.

Moreover, geothermal has vast potential, which could be realized if appropriate incentives are available. The U.S. Geological Survey ("USGS") estimates that about 23,000 megawatts of electrical power are recoverable from identified high and moderate temperature geothermal systems. It further estimates that the U.S. has total geothermal resources of between 95,000 and 150,000 megawatts. At present, only approximately 2800 megawatts have been developed, slightly over 10% of the clearly identified resource and less than 2% of the predicted range of geothermal potential.

Present growth has been restricted by three major factors: (1) oil and gas prices have been low and since, in effect, renewables generating electricity compete with oil and gas, the present investment and development potential is limited; (2) favorable contracts with utilities as promoted by states, particularly in California—the so-called "standard offer" contracts—are no longer available; and (3) the major Federal tax incentive—the geothermal energy tax credit—has, in the past few years, been in jeopardy on several occasions and the short-term extensions which have followed have inhibited any long-range planning, investment, or development of geothermal resources.

Exploration, drilling and production of the geothermal resource face many of the same challenges as oil and gas production and require experts from many of the

same disciplines, but geothermal is very distinct from oil and gas in the manner in which economic value can be realized from the fuel. This distinction has a profound impact on the nature of the business, restricting growth of the industry.

Typically the economic value of oil and gas can be realized very near the wellhead, at a point which the product can be delivered to a central processing plant or terminal where there is a ready market consisting of multiple potential buyers. For example, natural gas produced and sold in the Mid Continent area could ultimately be used to provide residential heating, electrical power or industrial steam consumed at locations from California to New England. In contrast, the geothermal resource can rarely be used, and has little economic value, in the form in which it is produced. It is converted to electricity at or near the wellhead and transmitted to an electric grid before any economic value can be realized.

Thus the economic value of the geothermal fuel is dependent upon the successful completion and operation of an electric power plant of a certain size and design depending upon the qualities of the resource. The geothermal power plant represents an investment many times that of the drilling program. The dependency of large-scale geothermal development on electric power production adds a layer of investment and business risk that is not present in oil and gas production. Oil and gas producers are not subject to the risk of a single project, are not dependent upon a specific technology, and do not rely on a one industry as the sole market for their product.

Geothermal's reliance on the successful conversion of the resource to electricity has led to close affiliations between, and often common ownership of, geothermal wells and electricity production facilities. The geothermal developer must market its electricity to one or more electric utilities in the area to realize value from the resource. The transaction with the utility is typically the first point of arms-length sale of geothermal energy.

With the proliferation of all-source bidding programs for the procurement of electricity supplies, geothermal power must compete with power produced from other fuels, including oil, gas, coal and waste, in order to obtain a market for its electricity. This competition can be intense, with solicitations often drawing bids for 10-20 times the desired supply. While utilities often include non-price factors in the scoring system used to evaluate offers, price remains the predominant variable in selecting the winning bidders.

Incentives such as the energy tax credit for renewable resources reduce the cost of geothermal power, allowing it to be more competitive in the bidding process. These incentives are justified in light of the environmental and security benefits of renewables versus the other competing alternatives.

Thus, in order to compete with fossil fuels, we advocate a permanent, or at least a multi-year, extension of the geothermal energy tax credit. In this regard, we support S. 141, which would extend the energy tax credits for geothermal and solar for five years. We also note that bills creating a production tax credit, such as S. 466, S. 661, S. 741 and S. 743, which I will discuss later in this statement, also contain five year extensions of the credit, thus giving the taxpayer an option to choose the most effective incentive. We are also pleased to note that, for the first time in the last decade, the Administration has come out in favor of an extension of the energy tax credits, albeit for only one year, first in the President's fiscal year '92 budget and then in its National Energy Strategy. The Administration's tax proposal is embodied in S. 731.

The energy tax credit is the single-most effective Federal program to promote renewable energy. The credit has been the thin margin of economic viability for geothermal power plants, stimulating investments over the past ten years which would not have occurred otherwise, and enabling the technology to continue to develop and improve. Unless the energy tax credit is extended, the geothermal industry will be less competitive and unable to proceed with new plants and continued technology development, significant projects under development will be lost, and capital will be difficult to attract.

The existing geothermal energy tax credit has an established body of precedent, is easy to apply and is well understood by the marketplace. It represents an identifiable, quantifiable and critical component in the structure of a geothermal project. Moreover, the credit is only earned when the project is placed in service and strict recapture rules are triggered if a project fails to remain in service.

For all of these reasons, we strongly urge this Committee and the Congress to support a permanent, or at least a multi-year, extension of the geothermal energy tax credit.

But earning of the credit is one milestone; utilization is another. In this regard, we would urge the Committee to support the full utilization of the credit earned against both a taxpayer's regular tax and alternative minimum tax ("AMT"). Thus,

we again urge support S. 1157, introduced by you, Mr. Chairman, which provides that the credits may be applied against the regular or alternative minimum tax. In the Omnibus Budget Reconciliation Act of 1990, Congress passed limited alternative minimum tax relief for the oil and gas industry. Such relief provides beneficial adjustments for preference items of intangible drilling cost and marginal production depletion; for some reason, geothermal was specifically excluded. While we believe that geothermal should be accorded the same treatment as oil and gas with respect to intangible drilling costs and depletion, we feel that the alternative minimum tax relief provided for oil and gas establishes an important precedent that should be extended to renewables with respect to the energy tax credit.

Finally, I would like to comment on the production tax credit concept. We think that there is merit in a production tax credit, but only as an alternative to, and not as a substitute for, an energy tax credit. This alternative approach is embodied in the bills I cited previously. In each case a taxpayer may elect to utilize the existing energy tax credit—which is extended for five years—or a production tax credit. As noted previously in my statement, the energy tax credit is an established concept endowed with certainty and a body of precedent. For many developers, this advantage will help attract capital and be essential in project financing. For other projects, which, for example, are internally financed, a production tax credit may be more beneficial. But versions of the production tax credit that have been introduced to date raise serious questions in the application of the credit to geothermal projects. Both the original DOE proposal and the Senate versions would discriminate against geothermal, by providing only one-half of the credit available for other technologies. If the stimulation of production is a major goal, such differentiation makes no sense. Moreover, some versions of the production tax credit have no provisions for carryovers or carry backs and mirror the energy tax credit's deficiency with regard to utilization against the AMT. If the production tax credit is enacted, these issues should be resolved so the final product is a workable and usable credit.

In summary, the GRA favors a permanent, or at least a multi-year, extension of the geothermal energy investment tax credit and its full utilization against the regular and alternative minimum tax. The GRA supports the concept of a production tax credit as an alternative, but not as a substitute for, the energy tax credit.

Thank you for permitting me to present the views of the GRA. I would be pleased to answer any questions.

PREPARED STATEMENT OF BRIAN W. CLYMER

Mr. Chairman and members of the committee. My name is Brian Clymer and I am the administrator of the Urban Mass Transportation Administration. I welcome this opportunity to discuss with you today the question of mass transit passes, federal tax policy for employer-provided transportation, and related issues.

I have a very brief opening statement to read; I will then be pleased to answer any questions you might have.

Mr. Chairman, in the realm of urban, suburban and rural public transportation, we, as a nation, are now asking questions about assumptions that have long gone unchallenged.

For example, we are paying closer attention to the relationship between federal tax policy and federal transportation policy.

Some scholars, for example, say we are overlooking important linkages in not examining in more depth the way such concepts as the deductibility of interest paid on home mortgages affects the shape of our urban and suburban areas and the relative importance we place on automobile versus mass transit commuting and travel.

Others say we have been deficient in understanding the kind of pricing mechanisms that might be used to levy a more complete share of the cost of single-occupancy automobile usage on those who make the heaviest demand on congested urban and suburban roadway systems.

This much I believe is true, however.

We are now coming to understand the complex cross-subsidies inherent in the patterns of automobile and mass transportation use in our country.

So with our faith in free markets undiminished, we are now attempting to understand market principles better as we sort out our transportation problems and establish our new priorities.

All of this is the background against which we must examine the issue of employer-subsidized commuting and existing federal tax policy.

Specifically, of course, I am talking about the current situation that allows employer-provided parking to be regarded as a tax free benefit, while the tax-exempt

limit for the mass transit subsidy an employer may choose to provide was capped, until recently, at $15 a month.

Let me also mention that it is not only the Department of Transportation that is concerned about this issue. The President's new national energy policy is equally forceful in calling for equity between the modes on this question.

Consistent with this position, the Department of the Treasury has recently proposed that the mass transit subsidy cap be raised to $21 a month, effective July 1st of this year.

Careful analysis and review is obviously required before adopting a final course of action. Our cause will not be furthered by acting either precipitously or unwisely.

I can say this; we at the Urban Mass Transportation Administration have begun to conduct preliminary studies on this matter, and will continue to do so.

As this issue is debated and discussed, we are willing to work with the committee, and its staff, in providing cost estimates and other analyses for various program options and combinations.

One final point if I may, Mr. Chairman.

Getting employers more involved in the whole transportation process can have enormous benefits in the long run.

The marketing of mass transportation today by a transportation provider assumes a series of individual choices on the part of potential customers . . . day after day after day, one trip at a time.

Bring the employer into the picture, though, and the transportation provider quickly shifts from being a retailer of its product to being a wholesaler.

Very different kinds of principles are brought into play once such a shift like this takes place.

Because then the transportation provider and the employer can sit down and do some serious negotiating with each other . . . negotiating over rates of fare and staggered work hours and guaranteed monthly volume and even changes in service and schedules.

A two or three percent change in the rate of fare an individual transit rider pays is insignificant and has little measurable impact on the overall behavior of transit riders.

A two or three percent differential in transit fare to an employer who is acting as agent for a large workforce may well be exactly the kind of threshold that can induce major changes that will help make mass transportation more efficient, more productive and more appealing.

If this sounds radical and different, stop and consider that it is exactly what happens today when employers provide parking for their workforce.

Few employers merely underwrite retail parking costs, whatever they happen to be, at local lots and garages.

They take advantage of the volume they represent and work out arrangements in a wholesale fashion.

Mass transportation in our country will reach a new level of maturity when it, too, can enjoy the benefit of such collective attention.

Mr. Chairman, that concludes my formal statement.

I thank you and the committee for your attention and for inviting me to appear before you this morning/afternoon.

[SUBMITTED BY SENATOR TOM DASCHLE]

[JOINT COMMITTEE PRINT]

DESCRIPTION OF PROPOSALS RELATING TO RENEWABLE ENERGY AND ENERGY CONSERVATION TAX INCENTIVES

SCHEDULED FOR HEARINGS

BEFORE THE

SUBCOMMITTEE ON ENERGY AND AGRICULTURAL TAXATION

OF THE

SENATE COMMITTEE ON FINANCE

ON JUNE 13-14, 1991

PREPARED BY THE STAFF

OF THE

JOINT COMMITTEE ON TAXATION

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JOINT COMMITTEE ON TAXATION

102D CONGRESS, 1ST SESSION

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INTRODUCTION

This pamphlet,[1] prepared by the staff of the Joint Committee on Taxation, provides a discussion of various Senate tax proposals intended to provide incentives to enhance the conservation of energy resources and to increase the use and development of renewable sources of energy. The Senate Finance Subcommittee on Energy and Agricultural Taxation has scheduled public hearings on that subject on June 13-14, 1991.

The first part of the pamphlet is a summary of the bills (in numerical order) that are to be the subject of the hearings. The second part is a description of specific tax provisions and proposals relating to energy conservation and the use and development of energy from renewable sources, including present law, Senate legislative proposals, any related Administration proposal, and analysis of related issues.

[1] This pamphlet may be cited as follows: Joint Committee on Taxation, *Description of Proposals Relating to Renewable Energy and Energy Conservation Tax Incentives* (JCS-8-91), June 11, 1991.

I. SUMMARY OF BILLS

A. S. 26—Senators Moynihan, Packwood, D'Amato, Kasten, DeConcini, Chafee, and Lautenberg

Exclusion for Certain Employer-Provided Transportation

S. 26 would exclude from gross income a portion of the value of certain transportation provided by an employer to an employee. The exclusion would apply to (1) the value of employer-provided transportation between an employee's home and work that is provided in a commuter highway vehicle,[2] or (2) up to $60 per month for any transit pass (i.e., any pass, token, farecard, voucher, or similar item that would entitle a person to transportation on mass transit facilities). In order to qualify for the exclusion, the transportation would have to be provided in addition to, rather than in lieu of, any compensation otherwise payable to the employee, and would have to be made available in a way that does not discriminate in favor of highly compensated employees.

The bill would be effective for taxable years beginning after December 31, 1990.

B. S. 83—Senator Symms

Exclusion for Public Utility Subsidies for Energy or Water Conservation Measures

S. 83 would provide an exclusion from gross income for the value of any subsidy provided by a public utility for the purchase or installation of an energy or water conservation measure. For this purpose, an energy or water conservation measure would include residential energy conservation measures described in section 210(11) of the National Energy Conservation Policy Act,[3] commercial energy conservation measures described in section 710(b)(5) of the National Energy Conservation Policy Act (as in effect on the day before the date of enactment of the Conservation Service Reform Act of 1986), specially defined energy property under section 48(l)(5) of the Internal Revenue Code (as in effect on the day before the date of enactment of the Revenue Reconciliation Act of 1990),[4] and any device designed to reduce water consumption.

The bill also would deny a deduction or credit, or in appropriate cases require a reduction in adjusted basis of property, to the

[2] For this purpose, a commuter highway vehicle generally would be any highway vehicle which seats at least seven adults (plus the driver), and at least 80 percent of the mileage use of which could reasonably be expected to be for the purposes of transporting employees between their homes and work.

[3] 42 U.S.C. 8211(11).

[4] Such property is discussed in detail in Part II.C.1. of this pamphlet.

extent that a subsidy was excluded from the gross income of the recipient.

The bill would be effective with respect to amounts received (or paid) after the date of enactment.

C. S. 129—Senators Mitchell and Cranston

Exclusion for Certain Employer-Provided Transportation

S. 129 would exclude from gross income a portion of the value of certain transportation provided by an employer to an employee. The exclusion would apply to (1) the value of employer-provided transportation between an employee's home and work that is provided in a commuter highway vehicle,[5] or (2) up to $30 per month for any transit pass (i.e., any pass, token, farecard, voucher, or similar item that would entitle a person to transportation on mass transit facilities). In order to qualify for the exclusion, the benefit would have to be provided in addition to, rather than in lieu of, any compensation otherwise payable to the employee. In addition, the benefit would have to be provided under a separate written plan of the employer which does not discriminate in favor of officers, shareholders, or highly compensated employees.

The bill would be effective for taxable years beginning after December 31, 1990.

D. S. 141—Senators Daschle and Packwood

Extension of Business Energy Tax Credits

S. 141 would extend for five years, through December 31, 1996, the present-law business energy tax credits for investments in qualified solar and geothermal energy property.

E. S. 201—Senators Gore and Wirth

Increase in Gas Guzzler Tax; Tax Credit for Purchase of Fuel-Efficient Automobiles

Increase in gas guzzler excise tax

Section 501 of S. 201 would require incremental increases in the graduated amounts of the gas guzzler tax (Code sec. 4064). The increase in the tax would first apply to 1992 model year automobiles, and additional increases would apply to automobiles manufactured in subsequent years. The bill's increases in the tax would be fully implemented with respect to automobiles with model years 2000 or later. For automobiles with those model years, the maximum amount of the tax would be $16,400 (adjusted for inflation) and would be imposed on automobiles with fuel economies of less than 13.5 miles per gallon.

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[5] For this purpose, a commuter highway vehicle generally would be any highway vehicle which seats at least seven adults (plus the driver), and at least 80 percent of the mileage use of which could reasonably be expected to be for the purposes of transporting employees between their homes and work.

This provision of the bill would be effective with respect to 1992 and later year automobiles.[6]

Tax credit for purchase of fuel-efficient automobiles

S. 201 also would provide a nonrefundable income tax credit for purchases of new fuel-efficient vehicles (sec. 502 of the bill). With respect to model year 1993 and 1994 automobiles, the credit could be as large as $750 if the fuel economy of the vehicle exceeds by at least 25 percent the average fuel economy of the model type in which the vehicle falls. For years 1995 through 2000, the maximum credit would be $2,000 per automobile purchased, and would apply if the fuel economy of the vehicle exceeds by at least 75 percent the average fuel economy of the vehicle model type.

This provision of the bill would be effective for taxable years ending after December 31, 1991.

F. S. 326—Senator Specter

Exclusion for Public Utility Subsidies for Energy Conservation Measures; Tax Credit for Retrofit of Residential Oil Heaters; Employer Deduction for Employee Parking

Exclusion for public utility subsidies for energy conservation measures

Section 201 of S. 326 would provide an exclusion from gross income for the value of any subsidy provided by a public utility for the purchase or installation of an energy conservation measure. For this purpose, an energy conservation measure would include residential energy conservation measures described in section 210(11) of the National Energy Conservation Policy Act,[7] commercial energy conservation measures described in section 710(b)(5) of the National Energy Conservation Policy Act (as in effect on the day before the date of enactment of the Conservation Service Reform Act of 1986), and specially defined energy property under section 48(l)(5) of the Internal Revenue Code (as in effect on the day before the date of enactment of the Revenue Reconciliation Act of 1990).[8]

The bill also would deny a deduction or credit, or in appropriate cases require a reduction in adjusted basis of property, to the extent that a subsidy was excluded from the gross income of the recipient.

This provision of the bill would be effective with respect to amounts received (or paid) after the date of enactment.

Tax credit for retrofit of residential oil heaters

Section 301 of the bill would provide a cumulative nonrefundable income tax credit of up to $100 to individuals for expenditures made to retrofit oil heaters used in a taxpayer's principal residence. Under the bill, qualifying expenditures would include ex-

[6] The bill specifies that it would apply with respect to 1991 and later model year automobiles; however, the bill's amendments to the gas guzzler tax rates first apply with respect to 1992 model year automobiles.

[7] 42 U.S.C. 8211(11).

[8] Such property is discussed in detail in Part II.C.1. of this pamphlet.

penditures for flame retention replacement burners for oil burners (or similar items specified by the Secretary of the Treasury). The adjusted tax basis of the residence would not be increased to the extent that the expenditure is allowed as a credit.

This provision of the bill would be effective for taxable years beginning after December 31, 1990; the credit would not be available in any taxable year beginning after December 31, 1994.

Employer deduction for employee parking

Section 602 of the bill would affect an employer's ability to claim a deduction for costs associated with parking subsidies provided to employees. Under the bill, no deduction would be allowed for such employer-provided parking costs unless the employer provides the parking subsidy pursuant to an arrangement under which the employee may elect, in lieu of the subsidy, to receive cash or a mass transit, car pool, or van pool subsidy in an amount equal to the value of the parking subsidy.

This provision of the bill would be effective for taxable years beginning with the third taxable year beginning after the date of enactment of the bill.

G. S. 466—Senators Grassley and Daschle

Tax Credit for Production of Qualified Electricity; Extension of Business Energy Tax Credits

Tax credit for production of qualified electricity

S. 466 would provide a nonrefundable income tax credit for the domestic production (or the production within a U.S. possession) of electricity through the use of qualified technologies property. Qualified technologies property for this purpose would be property related to the production of energy from the following sources: solar thermal, photovoltaic, wind, geothermal (other than dry steam geothermal), biomass, and others identified by the Secretary of Treasury in consultation with the Secretary of Energy. Initially, the credit would be equal to 2.0 cents (scaled down incrementally to 0.3 cents by the year 2001, but adjusted for inflation) per kilowatt hour of electricity produced with qualified technologies property and sold to unrelated persons.[9] The credit would offset the regular tax, but not the alternative minimum tax.

This provision of the bill would apply with respect to electricity sold after December 31, 1991, and before January 1, 2009, that is produced with qualified technologies property (for which a business energy tax credit is not allowed) which is placed in service after December 31, 1991, and before January 1, 2002.

Extension of business energy tax credits

In addition, the bill would extend for five years, through December 31, 1996, the current business energy tax credits for investments in qualified solar and geothermal energy property.

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[9] A 50-percent reduction in the amount of the credit would apply to electricity produced from qualifying geothermal properties.

H. S. 661—Senator Burns

Tax Credit for Production of Qualified Electricity; Extension of Business Energy Tax Credits; Tax Credit for Telecommuting

Tax credit for production of qualified electricity

S. 661 would provide a nonrefundable income tax credit for the domestic production (or the production within a U.S. possession) of electricity through the use of qualified technologies property (sec. 7101(a) of the bill). Qualified technologies property for this purpose would be property related to the production of energy from the following sources: solar thermal, photovoltaic, wind, geothermal (other than dry steam geothermal), biomass, and others identified by the Secretary of Treasury in consultation with the Secretary of Energy. Initially, the credit would be equal to 2.0 cents (scaled down incrementally to 0.3 cents by the year 2001, but adjusted for inflation) per kilowatt hour of electricity produced with qualified technologies property and sold to unrelated persons.[10] The credit would offset the regular tax, but not the alternative minimum tax.

This provision of the bill would apply with respect to electricity sold after December 31, 1991, and before January 1, 2009, that is produced with qualified technologies property (for which a business energy tax credit is not allowed) which is placed in service after December 31, 1991, and before January 1, 2002.

Extension of business energy tax credits

In addition, section 7701(b) of the bill would extend for five years, through December 31, 1996, the present-law business energy tax credits for investments in qualified solar and geothermal energy property.

Tax credit for telecommuting

Finally, section 1105 of the bill would provide an income tax credit for employers who offer or expand telecommuting flex-place programs. The credit would be a component of the general business credit and would not exceed the estimated net gasoline savings of the employees participating in such programs. The credit would apply to years 1992 through 1996.

I. S. 679—Senator Bradley

Exclusion for Public Utility Subsidies for Residential Energy Conservation Measures

S. 679 would exclude from the gross income of a residential consumer the value of any financial assistance or service provided by a public utility for the purchase or installation of a residential energy conservation measure as described in section 210(11) of the National Energy Conservation Policy Act.[11] The bill would deny a deduction or credit, or in appropriate cases require a reduction in

[10] A 50-percent reduction in the amount of the credit would apply to electricity produced from qualifying geothermal properties.

[11] 42 U.S.C. 8211(11).

adjusted basis of property, to the extent that a subsidy was excluded from the gross income of the recipient.

The bill would be effective with respect to amounts received (or paid) after the date of enactment.

J. S. 731—Senator Packwood (by request)

Extension of Business Energy Tax Credits

S. 731 would provide a one-year extension, through December 31, 1992, of the present-law business energy tax credits for investments in qualified solar and geothermal energy property (section 2 of the bill).

K. S. 741—Senators Wirth, Hatfield, Daschle, Jeffords, Bryan, Fowler, Bingaman, and Adams and S. 743—Senator Wirth [12]

Tax Credit for Production of Qualified Electricity; Extension of Business Energy Tax Credits; Exclusion for Employer-Provided Parking or Transportation; Tax Credit for Residential Oil Retrofit Components; Exclusion for Public Utility Subsidies for Energy or Water Conservation Measures; Excise tax on Purchase of Motor Vehicles With Low Fuel Economy

Tax credit for production of qualified electricity

S. 741 contains a number of provisions related to renewable energy sources and energy conservation. First, S. 741 would provide a nonrefundable income tax credit for the domestic production (or the production within a U.S. possession) of electricity through the use of qualified technologies property (sec. 801(a) of the bill). Qualified technologies property for this purpose would be property related to the production of energy from the following sources: solar thermal, photovoltaic, wind, geothermal (other than dry steam geothermal), biomass, and others identified by the Secretary of Treasury in consultation with the Secretary of Energy. Initially, the credit would be equal to 2.0 cents (scaled down incrementally to 0.3 cents by the year 2001, but adjusted for inflation) per kilowatt hour of electricity produced with qualified technologies property and sold to unrelated persons.[13] The credit would offset the regular tax, but not the alternative minimum tax.

The tax credit for the production of electricity would apply to electricity sold after December 31, 1991, and before January 1, 2009, that is produced with qualified technologies property (for which a business energy tax credit is not allowed) which is placed in service after December 31, 1991, and before January 1, 2002.

Extension of business energy tax credits

In addition, the bill would provide a five-year extension, through December 31, 1996, of the present-law business energy tax credits

[12] The tax provisions of these two bills are identical. Section references in the text refer to section numbers of S. 741.

[13] A 50-percent reduction in the amount of the credit would apply to electricity produced from qualifying geothermal properties. Solar energy systems that produce thermal energy for commercial and industrial applications would be allowed a credit equal to 65 cents per thermal kilowatt hour.

for investments in qualified solar and geothermal energy property (sec. 801(b) of the bill).

This provision of the bill would apply to taxable years beginning after December 31, 1991.

Exclusion for employer-provided parking or transportation

A third provision of the bill would limit the exclusion from an employee's gross income for employer-provided parking or transportation (sec. 811 of the bill). The bill would exclude from gross income only the value of parking provided to an employee at an employer-operated parking facility which is located on the employer's premises and substantially all the use of which is by employees of the employer. The value of all other employer-provided parking would be included in the gross income of the recipient.

With respect to employer-provided transportation, the exclusion would apply to up to $75 per month of the value of employer-provided transportation between an employee's home and work that is provided in a commuter highway vehicle,[14] or on buses, trains, boats, or subways that are available to the general public and are scheduled along regular routes.

This provision of the bill would be effective for parking and transportation provided after December 31, 1991.

Tax credit for residential oil retrofit components

Section 821 of the bill would provide a cumulative nonrefundable income tax credit of up to $100 to individuals for expenditures to install oil retrofit components used in a taxpayer's principal residence. Under the bill, an oil retrofit component is an unused item (1) which is a flame retention replacement burner for an oil burner or a similar item as specified by the Secretary of the Treasury, (2) which increases the insulation value of the residence (or an item within the residence, such as a water heater or a window), (3) which is an automatic thermostat control, and (4) which can reasonably be expected to remain in operation for at least three years.[15]

This provision of the bill would be effective for taxable years beginning after December 31, 1991; the credit would not be available in any taxable year beginning after December 31, 1995.

Exclusion for public utility subsidies for energy or water conservation measures

Another provision of S. 741 would provide an exclusion from gross income for the value of any subsidy provided by a public utility for the purchase, installation, use, or maintenance of an energy or water conservation measure or for energy savings delivered by such measures (sec. 831 of the bill). For this purpose, an energy or water conservation measure would include residential energy conservation measures described in section 210(11) of the National

[14] For this purpose, a commuter highway vehicle generally would be any highway vehicle which seats at least eight adults (plus the driver), and at least 80 percent of the mileage use of which could reasonably be expected to be for the purposes of transporting employees between their homes and work.

[15] It appears unlikely that a single item can satisfy all of these criteria. This may be a typographical error in the bill.

Energy Conservation Policy Act,[16] commercial energy conservation measures described in section 710(b)(5) of the National Energy Conservation Policy Act (as in effect on the day before the date of enactment of the Conservation Service Reform Act of 1986), specially defined energy property under section 48(l)(5) of the Internal Revenue Code (as in effect on the day before the date of enactment of the Revenue Reconciliation Act of 1990),[17] and any device designed to reduce energy or water consumption. The exclusion would not apply to payments to a qualified cogeneration facility or a qualifying small power production facility.

The bill also would deny a deduction or credit, or in appropriate cases require a reduction in adjusted basis of property, to the extent that a subsidy was excluded from the gross income of the recipient.

This provision of the bill would be effective with respect to amounts received (or paid) after the date of enactment of the bill.

Excise tax on purchase of motor vehicles with low fuel economy

Finally, S. 741 would impose a tax on the domestic sale of new motor vehicles with low fuel economies (sec. 841 of the bill). The tax would apply if the vehicle's fuel economy is less than the sales-weighted average fuel economy of all new motor vehicles within the same class.[18] The amount of the tax would be determined under the following formula:

$$\text{Tax} = \$10 \times (M - M^1)$$

where

M = the estimated annual fuel consumption of the vehicle, equal to 10,000 divided by the MPG rating of the vehicle, as determined by the EPA Administrator under section 2003(d) of title 15, United States Code; and

M^1 = the sales-weighted average fuel consumption of all motor vehicles in the same class as the vehicle.

In addition, the bill would impose a tax (or provide a rebate) on the domestic sale of motor vehicles based on the vehicles' safety performances in crash tests.

The bill does not provide a specific effective date for this provision.

L. S. 922—Senators Daschle and Grassley

Exclusion for Electric Utility Subsidies for Energy Conservation Measures

S. 922 would provide an exclusion from gross income for the value of any subsidy provided by an electric utility for the purchase or installation of an energy conservation measure. For this purpose, an energy conservation measure would include residential

[16] 42 U.S.C. 8211(11). (It appears that the bill erroneously refers to section 219(11) of the National Energy Conservation Policy Act.)

[17] Such property is discussed in detail in Part II.C.1. of this pamphlet.

[18] Conversely, the bill would provide a rebate for the domestic purchase of a new motor vehicle with a fuel economy that is greater than the sales-weighted average fuel economy of all new motor vehicles within the same class.

energy conservation measures described in section 210(11) of the National Energy Conservation Policy Act,[19] commercial energy conservation measures described in section 710(b)(5) of the National Energy Conservation Policy Act (as in effect on the day before the date of enactment of the Conservation Service Reform Act of 1986), and specially defined energy property under section 48(l)(5) of the Internal Revenue Code (as in effect on the day before the date of enactment of the Revenue Reconciliation Act of 1990).[20] The proposal would not apply to any payment to or from a qualified cogeneration facility or qualifying small power production facility pursuant to section 210 of the Public Utility Regulatory Policies Act of 1978 (PURPA).

The bill also would deny a deduction or credit, or in appropriate cases require a reduction in adjusted basis of property, to the extent that a subsidy was excluded from the gross income of the recipient.

The bill would be effective with respect to amounts received (or paid) after the date of enactment.

M. S. 1157—Senator Daschle

Application of Business Energy Tax Credits to the Alternative Minimum Tax

In the case of a corporation, S. 1157 would permit the present-law tax credits for investments in qualified solar energy and geothermal property to offset both the regular tax and the alternative minimum tax. The bill would be effective for taxable years beginning after December 31, 1991.

N. S. 1178—Senators Rockefeller, Danforth, Boren, D'Amato, Bingaman, and Nickles

Tax Deduction and Government Payment for Cost of Clean-Burning Motor Vehicle Property

S. 1178 would provide a current deduction for a portion of the cost of clean-burning motor vehicle property and clean-burning motor vehicle refueling property that is originally used by a taxpayer during a taxable year. In addition, S. 1178 would require the Federal Government to pay a State or local government for a portion of the cost of clean-burning motor vehicle property that is originally used by the State or local government.

Clean-burning fuel would be defined under the bill as natural gas, liquefied petroleum gas, and any other fuel if at least 85 percent of the fuel is methanol, ethanol, any other alcohol, ether, or any combination of the foregoing.

The amount of the current deduction for clean-burning motor vehicle property would be limited for each motor vehicle based on the type and size of the motor vehicle. In the case of an automobile or a light truck, the deduction would be limited to $2,000. In the case of a medium-size truck, the deduction would be limited to $5,000. In

[19] 42 U.S.C. 8211(11).

[20] Such property is discussed in detail in Part II.C.1. of this pamphlet.

the case of a heavy truck or bus, the deduction would be limited to $50,000.

The amount of the current deduction allowed any taxpayer (or a related person or predecessor) for clean-burning motor vehicle refueling property would be cumulatively limited to $75,000 per refueling location.

In the case of an individual, the deduction for clean-burning motor vehicle property would be allowed as an adjustment to gross income rather than as an itemized deduction. Consequently, the deduction would not be subject to the present-law 2-percent adjusted gross income floor that otherwise applies to miscellaneous itemized deductions or to the phase out of itemized deductions in the case of taxpayers with adjusted gross income in excess of $100,000.

The bill would apply to property placed in service after September 30, 1992, and before October 1, 2002.

II. DESCRIPTION OF TAX PROVISIONS AND PROPOSALS

A. INCENTIVES FOR USE OF RENEWABLE ENERGY SOURCES: SOLAR, GEOTHERMAL, WIND, AND BIOMASS

1. Tax credit for production of electricity

Present Law

There are no provisions in present law that permit taxpayers to claim income tax credits for the production of electricity from renewable sources. However, through 1991, a general business income tax credit equal to 10 percent of qualified cost is allowed for investments in solar energy property or geothermal property (Code sec. 48(a)). Solar energy property that qualifies for the credit includes any equipment that uses solar energy to generate electricity, to heat or cool (or provide hot water for use in) a structure, or to provide solar process heat. Geothermal property that qualifies for the credit includes equipment which produces, distributes, or uses energy derived from a geothermal deposit, but in the case of electricity generated by geothermal power, only property utilized up to (but not including) the transmission stage.

A production credit of $3 per barrel or BTU equivalent (generally adjusted for inflation) is available to taxpayers who produce nonconventional fuels (Code sec. 29). Fuels qualifying for the credit must be produced domestically from a well drilled or a facility placed in service before January 1, 1993. The production credit is available for fuels sold before January 1, 2003. Qualifying fuels include: (1) oil produced from shale or tar sands; (2) gas produced from geopressurized brine, Devonian shale, coal seams, a tight formation (tight sands gas), or biomass; or (3) liquid, gaseous, or solid synthetic fuels produced from coal (including lignite).

Legislative Proposals

S. 466 (Senators Daschle and Packwood), S. 661 (Senator Burns), S. 741 (Senators Wirth, Hatfield, Daschle, Jeffords, Bryan, Fowler, Bingaman, and Adams), and S. 743 (Senator Wirth)

S. 466, S. 661, S. 741, and S. 743 would provide a nonrefundable income tax credit against the regular income tax for the production of electricity through the use of certain qualified technologies property. Qualified technologies property for this purpose would be property related to the production of energy through the following technologies: solar thermal, photovoltaic (direct conversion of solar energy to electricity), wind, geothermal (other than dry steam geo-

thermal), and biomass.[21] The credit would be based on the amount of electricity generated and sold to unrelated parties between January 1, 1992, and January 1, 2009. Generally, the credit rate would equal 2 cents per kilowatt hour (kwh) in 1992 and would be gradually reduced (after 1996) to 0.3 cents per kwh in 2001 (these figures would be adjusted for inflation). Production of electricity from qualifying geothermal properties would be eligible for a credit equal to one-half the regular credit rate.[22] The proposed credit would not be available for electricity generated by property with respect to which the solar or geothermal business energy tax credits had been claimed.

Analysis

A production tax credit for electricity produced using renewable energy sources attempts to target the tax subsidy to producers who may find it difficult to find an economically attractive market for their product, given current technology. Such a credit provides a larger subsidy for those producers who utilize renewable energy technology in a more intensive manner.

It has been argued that it is more costly to develop technology to provide electricity from renewable energy sources than from conventional sources. To the extent this is true, it may be desirable to provide incentives for taxpayers to develop renewable energy technology. The gradual reduction in the credit rate may be an appropriate means to reduce the reliance of the producers on government tax subsidies and to promote reliance on market prices for their output. If the development of renewable energy technology takes place in response to this credit, then the gradual phaseout of the credit may be offset by the lowered cost of generating electricity through renewable energy sources caused by technological advances in this area.

By providing a relatively long life for the credit, the bill may encourage producers to invest in projects that may have long lead times before they are brought on line. In addition, the adjustment of the credit rate for inflation is designed to prevent the value of the credit from eroding over time due to price level changes.

The production credit provides a tax subsidy to renewable energy technologies without regard to the level of capital investment. This contrasts with investment credits (e.g., the present-law business energy tax credits) that provide greater subsidies to projects that are more capital intensive.

To the extent the production credit promotes the substitution of renewable energy sources for fossil fuels in the generation of electricity, there should be a reduction in atmospheric pollutants, including "greenhouse" gases. Moreover, this substitution of renewable for non-renewable energy sources may enhance the energy in-

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[21] The Secretary of Treasury, in consultation with the Secretary of Energy, would have the authority to identify additional qualifying technologies that are similar to the technologies specified in the bill.

[22] In S. 741 and S. 743, solar energy systems which produce thermal energy for commercial and industrial applications would be allowed a credit equal to 65 cents per thermal kilowatt hour.

dependence of the United States, since reductions in energy imports may result.

Some may argue that the proposed credit is overly generous, in light of the Clean Air Act and the Public Utility Regulatory Policies Act (which generally provide favorable treatment for independent power producers that sell electricity to public utilities). For example, electric utilities may be required to purchase power from independent generators at avoided cost, generally a relatively high cost source of generating power.[23] Some view this requirement as a subsidy for independent power generators, and the proposed credit would provide an even larger subsidy for those generators utilizing renewable energy technology.

In addition, there is no guarantee that the credit would benefit either the purchasing electric utility or its customers. This may be an important consideration because the electric utility industry generally is not considered to be a competitive industry, but instead, is regulated by state public utility commissions. For example, when a utility is required to purchase electricity at avoided cost, the credit would benefit the generator, and not flow through to the purchasing electric utility and its customers.

Finally, some critics would contend that a production credit is inefficient to the extent that some of the benefits go to taxpayers who would have undertaken the investment in renewable energy technologies even in the absence of the credit. This criticism may be addressed somewhat by providing a reduced credit rate to electricity generated from certain geothermal properties which may be thought to require a lower subsidy in order to encourage development.

2. Business energy tax credits

Present Law

Nonrefundable 10-percent income tax credits are allowed for investments in qualifying solar energy property and geothermal property (the "business energy tax credits"). Solar energy property that qualifies for the credit includes equipment which uses solar energy to generate electricity, to heat or cool (or provide hot water for use in) a structure, or to provide solar process heat. Qualifying geothermal property includes equipment which produces, distributes, or uses energy derived from a geothermal deposit, but, in the case of electricity generated by geothermal power, only up to (but not including) the electrical transmission stage.[24]

The business energy tax credits are included in the general business credit (Code sec. 38(b)(1)). The business energy tax credits, when combined with all other components of the general business credit, generally may not exceed for any taxable year the excess of the taxpayer's net income tax over the greater of (1) 25 percent of net regular tax liability above $25,000 or (2) the tentative minimum

[23] In this context, avoided cost means the amount the utility would otherwise have to pay to generate this electricity itself.

[24] For purposes of the credit, a geothermal deposit is defined as a domestic geothermal reservoir consisting of natural heat which is stored in rocks or in an aqueous liquid or vapor, whether or not under pressure (Code sec. 613(e)(2)).

tax. An unused general business credit generally may be carried back 3 years and carried forward 15 years.

The business energy tax credits have been extended on a short-term basis through a succession of statutes since 1986. The Omnibus Budget Reconciliation Act of 1990 extended these credits through the end of 1991, at which time the credits are scheduled to expire.

President's Budget Proposal

The President's fiscal year 1992 budget proposal would extend the business energy tax credits for solar energy and geothermal property for one year, through December 31, 1992.

Legislative Proposals

S. 141 (Senators Daschle and Packwood) S. 466 (Senators Grassley and Daschle), S. 661 (Senator Burns), S. 741 (Senators Wirth, Hatfield, Daschle, Jeffords, Bryan, Fowler, Bingaman, and Adams), and S. 743 (Senator Wirth)

S. 141, S. 466, S. 661, S. 741, and S. 743 would extend for five years, through December 31, 1996, the business energy tax credits for investments in solar energy property and geothermal property.

S. 731 (Senator Packwood)

S. 731 would extend for one year, through December 31, 1992, the business energy tax credits for investments in solar energy property and geothermal property.

S. 1157 (Senator Daschle)

Under S. 1157, the business energy tax credits for investments in qualified solar energy and geothermal property would be permitted to offset both the regular tax and the alternative minimum tax of a corporation.

Analysis

Extension of the credits

It has been argued that the cost of developing alternative sources of energy is often greater than the cost of producing energy from conventional sources. Thus, taxpayers may be more likely to produce energy from less-costly conventional sources. The business energy tax credits may provide economic incentives sufficient to cause taxpayers to undertake projects that develop energy from nonconventional sources where they would not otherwise do so.

Since 1986, the business energy tax credits have been extended on a short-term basis. This may have acted as a relative deterrent to investment in qualifying property since qualifying projects may have long lead-times before they are completed. Consequently, at the time such a project is planned, investors are uncertain whether the credit will be available when the property is eventually placed in service. By providing a longer extension of the credits, as opposed to extending them on a year-by-year basis, taxpayers may be more likely to invest in qualified property to be used in long-term projects.

On the other hand, it may be argued that the business energy tax credits have been in existence for a period of time (since 1978) that should have been sufficient to encourage production and sales of alternative fuels at efficient, self-sustaining levels. If those levels have not been reached to date, then it may be argued that the market for alternative sources of energy remains unattractive. If that is the case, it may be unlikely that those levels will be attained solely because a tax credit is available.

Others have argued that, like the regular investment tax credit (which was repealed by the Tax Reform Act of 1986), the business energy tax credits are inefficient subsidies to the extent that taxpayers would undertake qualifying investments even in the absence of the credit. Other legislation (e.g., the Clean Air Act and the Public Utility Regulatory Policies Act) promote the use of alternative energy sources; thus, the business energy tax credits may be superfluous in this context.

Alternative minimum tax

The alternative minimum tax, as added by the Tax Reform Act of 1986, requires corporate taxpayers to pay tax at a rate of 20 percent on a broad measure of their economic income. The alternative minimum tax was designed to assure that taxpayers with economic income pay some income tax. As such, most targeted tax benefits (so-called "tax expenditures") are not permitted to offset the tentative minimum tax. In general, the only tax credit permitted as a minimum tax offset is the foreign tax credit, and even in that case, it is not permitted to fully offset the tentative minimum tax.[25]

One argument in favor of the proposal set forth in S. 1157 is that it would increase the tax incentive to invest in qualified solar and geothermal projects for persons that might otherwise be subject to the alternative minimum tax. To the extent that this provision would allow taxpayers to shelter all or a large portion of their income from tax, however, other taxpayers may view the proposal as inequitable. Also, creating an alternative minimum tax exception for one industry may be viewed as precedent for other industries seeking minimum tax relief.

B. Incentives for Cleaning-Burning Motor Vehicles and Refueling Property

Present Law

In determining taxable income for Federal income tax purposes, a taxpayer is allowed a deduction for the depreciation of property used in a trade or business or held for the production of income. The depreciation deduction for tangible property generally is determined under the accelerated cost recovery system as modified by the Tax Reform Act of 1986 (depreciation for real property is computed a straight-line method). Under this cost recovery system, the depreciation deduction for automobiles and light general purpose trucks is determined by using a 5-year recovery period and the 200-

[25] The allowance of a foreign tax credit is not considered a tax expenditure. Rather, it is a mechanism designed to prevent double taxation of the same item of foreign source income.

percent declining balance method (with a switch to the straight-line method for the taxable year that the straight-line method yields a higher depreciation deduction). The depreciation deduction for other tangible personal property generally is determined by using a recovery period that is based on the class life of the property and either the 150-percent declining balance method (for 15-year and 20-year property) or the 200-percent declining balance method (for most other tangible personal property).

In lieu of a depreciation deduction, a taxpayer may elect, subject to certain limitations, to deduct the cost of up to $10,000 of qualifying property for the taxable year that the property is placed in service (Code sec. 179). For this purpose, qualifying property generally is defined as depreciable tangible property that is purchased for use in the active conduct of a trade or business.

Legislative Proposal

S. 1178 (Senators Rockefeller, Danforth, Boren, D'Amato, Bingaman, and Nickles)

S. 1178 would provide a current deduction for a portion of the cost of clean-burning motor vehicle property and clean-burning motor vehicle refueling property that is originally used by a taxpayer during a taxable year. In addition, the bill would require the Federal Government to pay a State or local government for a portion of the cost of clean-burning motor vehicle property that is originally used by the State or local government.

Under the bill, clean-burning motor vehicle property generally would be defined as (1) a motor vehicle that is produced and designed so that the vehicle may be propelled by a clean-burning fuel, but only to the extent of the portion of the basis of the vehicle that is attributable to an engine which uses such fuel, to the storage or delivery to the engine of such fuel, or to the exhaust of gases from the combustion of such fuel; and (2) any part or component that is designed to modify a motor vehicle that is propelled by a fuel which is not a clean-burning fuel so that the vehicle may be propelled by a clean-burning fuel (but only to the extent such part or component is an engine (or modification thereof) which uses a clean-burning fuel, or is attributable to the storage or delivery to the engine of such fuel, or to the exhaust of gases from the combustion of such fuel). In addition, in order for property to qualify as clean-burning motor vehicle property, the original use of the property must commence with the taxpayer and the property generally must satisfy any applicable Federal or State environmental standards.

Clean-burning motor vehicle refueling property generally would be defined as property that is used to store clean-burning fuel or to dispense clean-burning fuel into the fuel tank of a motor vehicle propelled by such fuel, but only if the fuel is stored at the same location where the fuel is delivered into the fuel tank of the motor vehicle. In order for property to qualify as clean-burning motor vehicle refueling property, the original use of the property must commence with the taxpayer. In addition, in order for a deduction to be allowed for the cost of clean-burning motor vehicle refueling

property, the cost of the property must be incurred in connection with a trade or business carried on by the taxpayer.

Clean-burning fuel would be defined as natural gas, liquefied petroleum gas, and any other fuel if at least 85 percent of the fuel is methanol, ethanol, any other alcohol, ether, or any combination of the foregoing.

The amount of the current deduction for clean-burning motor vehicle property would be limited for each motor vehicle based on the type and size of the motor vehicle. In the case of an automobile or a light truck,[26] the deduction would be cumulatively limited to $2,000. In the case of a medium-size truck,[27] the deduction would be limited to $5,000. In the case of a heavy truck [28] or bus, the deduction would be limited to $50,000.

The amount of the current deduction allowed any taxpayer (or a related person or predecessor) for clean-burning motor vehicle refueling property would be cumulatively limited to $75,000 per refueling location. For purposes of this limitation, two or more refueling locations that are located less that two miles apart and that are owned or controlled by the taxpayer or a related person are considered a single location. In addition, the Treasury Department is provided regulatory authority to ensure that this limitation is not circumvented.

The basis of any property with respect to which a current deduction is allowed would be reduced by the amount of the deduction. In addition, the recapture provisions of Code section 1245, which characterize certain gain from the disposition of property as ordinary income, would apply to the current deduction allowed for the cost of clean-burning motor vehicle property and clean-burning motor vehicle refueling property.

In the case of an individual, the deduction for clean-burning motor vehicle property would be allowed as an adjustment to gross income rather than as an itemized deduction. Consequently, the deduction would not be subject to the 2-percent adjusted gross income floor that otherwise applies to miscellaneous itemized deductions or to the phase out of itemized deductions in the case of taxpayers with adjusted gross income in excess of $100,000.

The amount that the Federal Government would be required to pay a State or local government with respect to clean-burning motor vehicle property used by the State or local government would be determined under regulations prescribed by the Treasury Department. The amount generally would equal the present value of the incremental benefit that would be available by reason of the deduction if the State or local government were subject to the Federal income tax and the clean-burning motor vehicle property were used in a trade or business.

The bill would apply to property placed in service after September 30, 1992, and before October 1, 2002.

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[26] A light truck would be defined as a truck with a gross vehicle weight rating of 10,000 pounds or less.

[27] A medium-size truck would be defined as a truck with a gross vehicle weight rating that is greater than 10,000 pounds but not greater than 26,000 pounds.

[28] A heavy truck would be defined as a truck with a gross vehicle weight rating that is greater than 26,000 pounds.

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Analysis

The purpose of S. 1178 is to encourage individuals, businesses, and State and local governments to purchase (or convert to) motor vehicles that may be propelled by clean-burning fuels (and to encourage businesses to provide the related refueling equipment) in order to reduce (1) the atmospheric pollution caused by motor vehicles and (2) the dependence of the United States on imported petroleum products. Health problems and related medical expenses may be reduced as a result of decreased emissions from motor vehicles powered by clean-burning fuels. In addition, the dependence of the United States on imported petroleum products may be curtailed to the extent that motor vehicles are propelled by domestically produced natural gas, ethanol, or methanol instead of refined petroleum products.

Some may argue that it is unclear, however, whether an incentive to purchase motor vehicles propelled by clean-burning fuels should be provided through the Federal income tax system and whether the tax benefits contained in the bill are appropriate to achieve the desired behavior. It is believed by some that the Federal income tax law should be designed solely to collect revenue in a manner that is least disruptive to the economy. By providing an income tax incentive for motor vehicles that may be propelled by certain clean-burning fuels and not by other sources (for example, electricity), the bill may distort investment decisions and result in a misallocation of resources. In addition, by providing an income tax incentive for motor vehicles that may be propelled by ethanol or other alcohol in addition to the existing alcohol fuel credit (Code sec. 40), it may be argued that taxpayers may invest disproportionately in the development of ethanol and other alcohol as a clean-burning fuel.

As an alternative to the income tax benefits, the purchase of motor vehicles that are propelled by clean-burning fuels could be required for certain businesses and for State and local governments. Under the Clean Air Act Amendments of 1990, certain businesses will be required by revised State implementation plans to use motor vehicles that are propelled by clean fuels. It may be argued that it is inefficient to provide an income tax benefit to encourage behavior that is required by law.

It may also be argued that the Federal income tax system should not be used to provide subsidies to entities, such as State and local governments, that are not subject to the Federal income tax. A direct appropriation to State and local governments is likely to be administratively simpler than requiring State and local governments to file refund claims with the Internal Revenue Service. Further, the bill provides insufficient guidance on how the Treasury Department would determine the amount of the payments to State and local governments. A direct appropriation might avoid the difficulties involved in determining the amount of such payments.

C. Energy Conservation Subsidies

1. Exclusion for utility rebates

Background

Regulated utilities have recently undertaken a variety of programs to reduce the use of energy or water by both residential and business customers. The programs have different goals. For example, some electric utility programs attempt to control energy demand during peak capacity periods, while others attempt to control overall demand so as to avoid the construction of costly new generating facilities. Some water utility programs attempt to save valuable resources in drought-stricken areas. Other programs attempt to provide subsidies to low-income consumers. The programs also take different forms. Some programs provide reduced utility rates to consumers that volunteer to have power diminished during certain peak periods. Other programs provide cash payments to consumers that purchase or install energy efficient appliances or devices from third-party vendors. The treatment of these programs by public utility commissions (PUCs) also varies. Some PUCs allow the utility to recover only the utility's cost of the program from ratepayers; others allow the utility to earn a profit on the program's anticipated cost savings.

Present Law

Under section 8217(i) of the National Energy Conservation Policy Act, any subsidy provided by a utility to a residential customer for an energy conservation measure was excluded from gross income. This exclusion expired June 30, 1989. The IRS has ruled that cash payments by a utility to encourage the installation of alternative heating systems are includible in the gross income of the recipients.[29] The heating systems were installed by third-party vendors. In the ruling, the IRS distinguished the taxable utility payments from nontaxable automobile manufacturer rebates (which are treated as adjustments to the purchase price of the automobile) on the grounds that the heating systems in the ruling were purchased from third-party vendors and not from the utility.

Utilities are required to provide the IRS and recipients of taxable payments of $600 or more with an information return (Form 1099).

Although the appropriate tax treatment is unclear, it generally is understood that utilities deduct the amount of the payments for the year of payment.

Legislative Proposals

S. 83 (Senator Symms), S. 326 (Senator Specter), S. 679 (Senator Bradley), S. 741 (Senators Wirth, Hatfield, Daschle, Jeffords, Bryan, Fowler, Bingaman, and Adams), S. 743 (Senator Wirth), and S. 922 (Senators Daschle and Grassley)

S. 83, S. 326, S. 679, S. 741, S. 743, and S. 922 would each provide an exclusion from gross income for the value of any subsidy provid-

[29] Technical Advice Memoranda 8924002.

ed by a public utility for the purchase or installation of an energy conservation measure. For these purposes, an energy conservation measure generally would include residential energy conservation measures described in section 210(11) of the National Energy Conservation Policy Act,[30] commercial energy conservation measures described in section 710(b)(5) of the National Energy Conservation Policy Act (as in effect on the day before the date of enactment of the Conservation Service Reform Act of 1986),[31] specially defined energy property under section 48(l)(5) of the Internal Revenue Code (as in effect on the day before the date of enactment of the Revenue Reconciliation Act of 1990),[32] or, in somes cases, any other measure designed to reduce energy consumption. S. 679 defines an energy measure to only include residential energy conservation measures described in section 210(11) of the National Energy Conservation Policy Act. S. 83, S. 741, and S. 743 also apply to water conservation measures, which are defined as any device designed to reduce water consumption. In addition, S. 741, S. 743, and S. 922 provide that the exclusion would not apply to payments to a qualified cogeneration facility or a qualifying small power production facility pursuant to section 210 of the Public Utility Regulatory Policies Act of 1978 (PURPA).

The bills also would deny a deduction or credit, or in appropriate cases require a reduction in adjusted basis of property, to the extent that a subsidy was excluded from the gross income of the recipient.

The bills would be effective with respect to amounts received (or paid) after the date of enactment.

Administration Proposals

The Department of Energy's National Energy Strategy, released February 20, 1991, proposed excluding from gross income electric

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[30] Such measures include: caulking and weather-stripping of doors and windows; furnace efficiency modifications including certain replacement burners, furnaces or boilers which are determined to increase energy efficiency, certain devices for modifying flue openings, and certain electrical or mechanical furnace ignition systems; clock thermostats; ceiling, attic, wall, and floor insulation; water heater insulation; storm windows and doors, multiglazed windows and doors, heat-absorbing or heat-reflecting glazed window and door materials; devices associated with load management techniques; devices to utilize solar energy or windpower for any residential energy conservation purpose; and such measures as the Secretary of Energy by rule identifies for this purpose. 42 U.S.C. 8211(11).

[31] Such measures include an installation or modification to an installation which is primarily designed to reduce the consumption of petroleum, natural gas, or electric power in a multifamily dwelling or commercial building, including caulking and weather-stripping; insulation of the building or dwelling structure and systems within the building; storm windows and doors, multiglazed windows and doors, heat-absorbing and heat-reflecting window and door systems, glazing, reductions in glass areas, and other window and door modifications; automatic energy control systems and associated equipment, furnace efficiency modifications including certain replacement burners, furnaces or boilers which are determined to increase energy efficiency, certain devices for modifying flue openings, and certain electrical or mechanical furnace ignition systems; certain replacements or modifications of lighting systems which increase energy efficiency without generally increasing overall illumination; energy recovery systems; cogeneration systems which produce electricity, as well as steam or other forms of thermal or mechanical energy, and which meet such fuel efficiency requirements as the Secretary of Energy may, by rule, prescribe; certain solar energy systems; and such measures as the Secretary of Energy by rule identifies for this purpose. 42 U.S.C. 8281(b)(5).

[32] That section included the following types of property: A recuperator, a heat wheel, a regenerator, a heat exchanger, a waste heat boiler, a heat pipe, an automatic energy control system, a turbulator, a preheater, a combustible gas recovery system, an economizer, modifications to alumina electrolytic cells, and modifications to chlor-alkali electrolytic cells. This provision was repealed in the Omnibus Budget Reconciliation Act of 1990.

bill discounts that utilities grant to consumers that make investments in energy efficiency. However, cash payments from utilities to customers would be includible in gross income. The report also stated that the IRS should issue a ruling providing that the utility should capitalize the amount of the cash payments as an intangible asset.

Analysis

In general

Encouraging the purchase of energy-efficient appliances and machinery through tax-free utility rebates may foster some degree of energy conservation which helps promote energy independence and indirectly reduces pollution. To the extent overall energy consumption is decreased, utilities may build fewer generating and transmission facilities to meet future demand. Tax exemption could be tailored only to certain services, customers, or programs in order to reward only those that are the most energy efficient. However, favoring purchases of certain appliances or devices over other forms of energy conservation (such as turning down thermostats) may not necessarily generate energy conservation in the most efficient manner and may simply provide a windfall to the recipient of the tax benefit (particularly, if the consumer would have purchased the appliance without the added inducement of the tax benefit). For these and other reasons, it may be argued that energy programs generally would be more efficiently funded through direct appropriations and not the Federal income tax system.

The present-law treatment of the various types of current energy saving programs is unclear; some may be subject to tax while others may not. Some utility rebate programs may be sufficiently similar to nontaxable direct vendor rebate programs as to warrant the same tax treatment (i.e., exclusion from gross income of the recipient). Exempting payments from all conservation programs would clarify the law.

On the other hand, some utility rebate payments are clearly in the nature of compensation to consumers for specified behavior. Such compensation generally is subject to Federal income tax and should be included in the income of the recipient. In addition, permitting utility rebates to be excludible from the gross income of the recipient may create a mismeasurement of income problem within the tax system to the extent that a deduction from income is permitted for the cost of the rebate by the utility, with no corresponding income inclusion by the consumer.

Utility conservation rebates may cause compliance problems. Many payments made to residential customers are in amounts less than $600 and are not required to be reported by the utility to the IRS or the customer. Thus, it is possible that a significant number of individuals are unaware of the present-law requirement to include such amounts in income. In addition, the lack of information reporting may hamper the ability of the IRS to audit taxpayer compliance with this requirement.

Finally, utility rebate programs differ by company. Providing an exclusion for all such utility rebates may be geographically inequitable. In addition, the granting of the tax expenditure through var-

ious utility rebate programs is not subject to Congressional oversight.

Differences among the bills

There are differences among the various bills. For example, S. 679 only applies to certain specific energy-saving measures that relate to residential buildings. Other listed bills apply to energy-saving measures that relate to not only residential and commercial buildings, but also to any "other measure designed to reduce energy consumption." Presumably, this broad definition would include industrial utility customers. Providing a broad range of qualified recipients may be over-inclusive and may include less efficient energy-saving programs; providing a limited range of qualified recipients may create definitional problems (e.g., some structures are multipurpose—both residential and commercial or both commercial and industrial).[33] In addition, payments to commercial and industrial consumers are more likely to be above the information reporting threshold ($600) than are payments to residential consumers.

S. 83, S. 741, and S. 743 would also apply to measures that are designed to reduce water consumption. The conservation benefits of such programs may be different from the conservation benefits from energy-saving programs. Thus, it may not be appropriate to provide the same tax benefit to both types of programs.

Finally, S. 741, S. 743, and S. 922 each provide that the tax exclusion does not apply to payments made to a qualified cogeneration facility or a qualifying small power production facility. By not containing such a provision, S. 83 and S. 326 would presumably allow exclusions for PURPA payments made with respect to such facilities, since it could be argued that one of the primary goals of PURPA is energy conservation. This situation might permit the utility and the independent power producer to bargain over both the size and character (i.e., non-taxable conservation subsidy versus taxable revenue from sales) of the payments. The qualification of the PURPA payments for the tax exclusion may effectively exempt the operators of such facilities from tax. Congress may wish to consider whether it is appropriate to provide operators of qualified cogeneration facilities or qualifying small power production facilities benefits over and above those provided by PURPA itself.

2. Tax credit for oil retrofit components

Present Law

No tax credit is available under present law for taxpayers who undertake energy conservation measures for their personal residences. Generally, the amount of such expenditures increase the taxpayer's adjusted basis in the residence.

Prior Law

Under prior law, a nonrefundable income tax credit was available to homeowners and renters for certain purchases that in-

[33] However, it should be noted that PUCs and utilities in some service areas distinguish among types of customers in establishing and charging utility rates.

creased the energy efficiency of their residences (the "residential energy credit").[34] The credit was equal to 15 percent of the first $2,000 of qualified expenditures over the life of the credit, meaning that a maximum credit of $300 could be claimed by a taxpayer. Qualified expenditures were those incurred after December 31, 1977, and before January 1, 1986.

Qualified expenditures included insulation, replacement burners and devices to modify flue openings to increase fuel efficiency, electrical or mechanical furnace ignition devices that replaced pilot lights, storm or thermal windows or doors, automatic setback thermostats, caulking or weather-stripping, or energy usage meters. Under prior law, expenditures to retrofit oil burners to increase energy efficiency constituted qualified expenditures for purposes of the residential energy credit.

Legislative Proposals

S. 326 (Senator Specter), S. 741 (Senators Wirth, Hatfield, Daschle, Jeffords, Bryan, Fowler, Bingaman, and Adams), and S. 743 (Senator Wirth)

S. 326, S. 741, and S. 743 would provide a non-refundable income tax credit for expenditures made for qualified oil retrofit components used in taxpayers' principal residences. The credit would equal 100 percent of the expenditures, up to a lifetime limit of $100 for any taxpayer. S. 326 specifies that qualified retrofit expenditures are unused flame retention replacement burners for oil burners (or similar items specified by the Secretary of Treasury). S. 741 and S. 743 specify that qualified retrofit expenditures are items (1) which are unused flame retention replacement burners (or similar items specified by the Secretary of Treasury), (2) which increase the insulation value of the residence (or of an item within the residence, such as a water heater or window), (3) which are automatic thermostat controls, and (4) which can reasonably be expected to remain in operation for at least three years.[35] Retrofit expenditures made with subsidized energy financing (including grants and low interest loans) from a Federal, State, or local program, would not be qualified expenditures for purposes of the credit. Any credit claimed would reduce the tax basis of the taxpayer's residence. Generally, the proposals would be effective for taxable years beginning after December 31, 1991, no credit would be allowed for taxable years beginning after December 31, 1995.[36]

Analysis

The proposals are designed to target tax subsidies to those taxpayers who have yet to undertake qualified retrofit projects. The credit is not directly related to the increased energy efficiency of the proprty installed, since all qualifying expenditures receive a credit of 100 percent of the first $100 of expenditure. If the cost of a

[34] Public Law 95-618.

[35] It appears unlikely that a single item can satisfy all of these criteria. This may be a typographical error in the bill.

[36] Note, however, that the effective date of S. 326 is for taxable years beginning after December 31, 1990, and no credit would be allowed for taxable years beginning after December 31, 1994.

qualified retrofit expenditure exceeds $100, the credit would not affect the marginal behavior of the taxpayer (that is, increase the energy efficiency of whatever expenditure is made). However, the credit may encourage a taxpayer to engage in the one-time purchase of a significant capital improvement.

To the extent the credit influences taxpayer behavior and increases the utilization of oil retrofit components, the consumption of fuel in retrofitted homes should decline. This conservation of energy could help reduce oil imports into the United States and reduce emissions of pollutants, including "greenhouse" gases.

To the extent that the market price of oil is sufficient by itself to induce conservation, the provision of the retrofit credit may be seen as providing a windfall to taxpayers who would have undertaken the purchase of oil retrofit components even in the absence of the credit program. In this situation, the existence of the credit would not add significantly to the total amount or speed of investment in oil retrofit conservation technology.

The proposed credit might potentially bias conservation efforts in favor of qualified oil retrofit expenditures, and away from other conservation measures such as increased insulation, thermal windows and doors, lowered thermostat settings, etc. Moreover, it is uncertain if the market for oil retrofit components is sufficiently competitive that the entire value of the proposed credit, would accrue to the taxpayers claiming the credit, rather than being partially captured by the purveyors of oil retrofit components in the form of higher retail prices for these items.

The proposed credit may be perceived as inequitable to the extent it is targeted to the relatively small portion of the U.S. population that uses oil-fired burners to heat their homes. The Energy Information Administration reports that, in 1987, 12.2 million households used home heating oil or kerosene as their primary heating source (out of a total 90.5 million households in the United States).[37] Moreover, the same source shows the percentage of households using oil heat to be declining over time as newer homes tend to use natural gas or electricity as the primary heating source.

There is substantial evidence to indicate that potentially large energy conservation gains remain among the lowest income households. A non-refundable credit is of limited value to these households who generally are not subject to Federal income tax. Moreover, the credit is not available to landlords, and may not provide an effective subsidy to those households consisting of renters who would be unlikely to purchase a capital improvement that would ultimately benefit the owner of the residence.

[37] Energy Information Administration, *Annual Energy Review 1989*, Department of Energy, May 1990.

D. Parking and Transportation Subsidies: Treatment of Employer-Provided Parking or Commuting Costs

Present Law

Under present law, gross income does not include a fringe benefit that qualifies as a de minimis fringe (Code sec. 132). In general, a de minimis fringe is any property or service the value of which (after taking into account the frequency with which similar fringes are provided by the employer to employees) is so small as to make accounting for it unreasonable or administratively impracticable.

Under Treasury regulations, employer-provided public transit passes, tokens, fare cards, etc., are considered de minimis fringe benefits if the employer-provided value of the benefit does not exceed $15 per month. This exclusion does not apply to the provision of any benefit to defray public transit expenses incurred for personal travel other than commuting. If the benefit exceeds $15 per month, then the total value of the benefit is includible in gross income. The Treasury Department has issued proposed regulations stating that, to reflect increases in the cost of living, the $15 per month exclusion will be raised to $21 per month effective for benefits provided on or after July 1, 1991.

Present law provides an unlimited exclusion for the value of parking provided to employees on or near the business premises of the employer.

An employer generally may deduct expenses associated with employer-provided parking or mass transit as trade or business expenses.

Under prior law, certain employer-provided transportation between an employee's residence and place of work provided in a commuter highway vehicle was excluded from gross income. This exclusion expired for taxable years beginning after December 31, 1985.

Legislative Proposals

S. 26 (Senators Moynihan, Packwood, D'Amato, Kasten, DeConcini, Chafee, and Lautenberg), S. 129 (Senators Mitchell and Cranston), S. 741 (Senators Wirth, Hatfield, Daschle, Jeffords, Bryan, Fowler, Bingaman, and Adams), and S. 743 (Senator Wirth)

In general, S. 26, S. 129, S. 741, and S. 743 would each provide an unlimited exclusion from gross income for employer-provided commuting in a commuter highway vehicle (e.g., van pooling) and would eliminate the present-law cliff on the exclusion for employer-provided transit passes and increase the amount that could be excluded from gross income. The transit pass exclusion would apply to up to (1) $30 per month under S. 129, (2) $60 per month under S. 26, and (3) $75 per month under S. 741 and S. 743.

S. 741 and S. 743 would also modify the exclusion for employer-provided parking by providing that it applies only to parking operated by the employer on the business premises of the employer and only if substantially all the use of the parking is by employees of the employer.

S. 326 (Senator Specter)

S. 326 would provide that no deduction is allowable to an employer for costs associated with parking subsidies provided to employees unless the employer provides the subsidy pursuant to an arrangement under which the employee may elect, in lieu of the subsidy, to receive cash or a mass transit, car pool, or van pool subsidy in an amount equal to the value of the parking subsidy.

S. 661 (Senator Burns)

S. 661 would provide an income tax credit for employers who offer or expand telecommuting flex-place programs. The credit would be a component of the general business credit (Code sec. 38), and would not exceed the estimated net gasoline savings of the employees participating in such programs. The credit would apply to years 1992 through 1996.

Analysis

Commuting subsidies

Present law provides more favorable income tax treatment for employer-provided parking than for employer-provided mass transit subsidies. Critics of present law argue that this treatment is inappropriate both from a tax policy perspective and from an environmental and energy perspective.

From a tax policy point of view, some may argue there is no reason to exclude from income any employer-provided commuting expenses—whether for parking or for use of mass transit or commuter vehicles. All such amounts should be includible in gross income as compensation.

From an environmental perspective, critics of present law argue that the unlimited exclusion for parking encourages people to drive rather than use mass transit. Thus, some of the legislative proposals attempt to make the tax laws more neutral between forms of commuting by expanding the exclusion for nonparking commuting expenses.

It is unclear whether expanding the exclusion for nonparking expenses alone will result in the desired behavioral response. Some argue that there will be little change from driving to commuting by other means unless drivers face some or all of the cost of parking; i.e., unless the cost of driving and parking is substantially increased relative to the cost of other means of commuting.[38] Thus, they argue that the exclusion for parking should be limited or eliminated.

Some people argue that another way to make employees bear some of the cost of parking is to give employees a choice between excludable parking, cash, or mass transit subsidies.[39] That is, to apply a proposal similar to S. 326 at the employee level. Such a proposal may encourage some employees to take cash instead of

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[38] *See*, for example, Richard Willson and Donald Shoup, "Parking Subsidies and Travel Choices: Assessing the Evidence," *Transportation*, vol. 16, 1990.

[39] This point has been made by Donald Shoup and Richard Willson, in "Employer-Paid Parking: The Influence of Parking Prices on Travel Demand," a paper presented at the Commuter Parking Symposium, Seattle, December 1990.

parking, and then use some or all of the cash to pay for commuting. On the other hand, to the extent such a proposal would allow employees to convert cash compensation into a nontaxable benefit such as parking, it may actually induce more people to drive, and may also result in a greater revenue loss.

Any proposals that require valuing employer-provided parking could create administrative problems for both the IRS and taxpayers. This determination could be particularly difficult in areas that do not have a significant market for paid parking. Valuation issues could be reduced somewhat by adopting a safe harbor rule for valuing parking or if parking up to some specified amount is excludable from income. In the latter case, only parking in excess of the cap need be valued.

S. 326 adopts an alternative approach and denies the employer a deduction for certain employer-provided parking expenses. Some argue that this approach is less desirable than those that affect employees because the employer should in any event be entitled to a deduction for compensation. Moreover, this proposal would treat tax-exempt employers differently than fully taxable employers since only the latter are affected by the denial of a deduction. This distinction may be viewed as inequitable. The proposal would also create administrative problems—for example, the employer cost of subsidized parking may be difficult to determine in some cases (e.g., it is unclear what portion of a depreciation deduction should be denied if the parking were provided in a building owned by the employer).

Tax credit for telecommuting

It is technologically possible for some workers to perform their employment-related tasks without necessarily being present at a particular location. For example, some workers may be able to complete the same tasks at home as they could at their ordinary place of work. Maintaining telecommunications links between an employee's home and place of employment may be an effective substitute for requiring the employee to commute to the place of employment. Through so-called "telecommuting," the congestion and atmospheric pollution caused by automobile commuting could be mitigated. A tax credit for the employer's costs incurred in setting up and maintaining telecommuting programs is intended to provide encouragement for such programs. To the extent that social costs such as congestion and pollution (called externalities by economists) are not reflected in the private decision about whether to commute by automobile, a tax subsidy for telecommuting may be one way to address this imbalance between social and private costs.

The proposal would provide a credit for up to 100 percent of the costs incurred by an employer in offering or expanding a telecommuting program for its workforce. The credit amount would be capped by the estimated net savings in gasoline costs for the employees included. This credit may be perceived as overly generous to the employers involved, since it is based on all costs incurred that are related to implementation of the telecommuting program, not just on the additional costs incurred in excess of ordinary business needs. Under the bill, taxpayers would have the incentive to

reclassify expenditures as being related to the telecommuting program in order to maximize the amount of credit that could be claimed.

The proposed credit would provide greater benefits to certain industries than to others. For instance, attorneys may be able to perform much of their work at home, while machine operators may not. The benefit of the credit, then, would likely be unevenly distributed across the economy.

Finally, the limitation on the credit to an amount equal to estimated net gasoline savings coud have arbitrary consequences. It may be perceived as unfair that two similar employers who incur similar costs in setting up telecommuting programs receive differing amounts of credit because one employer's workers happen to commute a greater distance (on average) than do the workers of the other employer. In addition, the bill's requirement that the employer compute its employees' estimated gasoline savings (net of Federal, State, and local excise taxes) may impose administrative complexities on the employer.

E. Proposals to Encourage Use of Fuel Efficient Automobiles

Present Law

An excise tax (the "gas guzzler" tax) is imposed on automobiles that do not meet statutory standards for fuel economy (Code sec. 4064). The gas guzzler tax is imposed on the manufacturer or importer of the automobile and generally applies to passenger automobiles with unloaded gross vehicle weights of 6,000 pounds or less. The amount of tax varies according to the fuel efficiency of a model of automobile. For 1991 and thereafter, no gas guzzler tax is imposed if the fuel economy of the automobile model is at least 22.5 miles per gallon (as determined by the Environmental Protection Agency). For the automobile models that do not meet that standard, the tax begins at $1,000 and increases to $7,700 for the automobile models with fuel economy ratings of less than 12.5 miles per gallon.[40] In general, the gas guzzler tax does not apply to light trucks and vans.

The table below presents the tax applicable to each automobile.

Fuel Economy (miles per gallon)	Tax
At least 22.5	0
At least 21.5 but less than 22.5	$1,000
At least 20.5 but less than 21.5	1,300
At least 19.5 but less than 20.5	1,700
At least 18.5 but less than 19.5	2,100
At least 17.5 but less than 18.5	2,600
At least 16.5 but less than 17.5	3,000
At least 15.5 but less than 16.5	3,700
At least 14.5 but less than 15.5	4,500
At least 13.5 but less than 14.5	5,400
At least 12.5 but less than 13.5	6,400
Less than 12.5	7,700

[40] The Omnibus Budget Reconciliation Act of 1990 doubled the prior tax rates, from beginning at $500 and increasing to $3,850, effective on January 1, 1991. The prior tax rates applied for 1986 through 1990.

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Legislative Proposals

S. 201 (Senators Gore and Wirth)

In general

S. 201 generally would increase the fuel efficiency threshold below which the gas guzzler tax applies and increase the amount of the tax for 1992 and later model year automobiles. The bill also would provide a credit against the regular income tax to the manufacturer for each qualified passenger vehicle if the vehicle's fuel economy rating exceeds, by a specified percentage, the average fuel economy of such vehicle's model type.

Rates of tax

The bill generally would increase the fuel efficiency threshold for vehicles subject to the gas guzzler tax by one mile per gallon per year for each model year between 1992 and 2000. For example, under present law the threshold fuel economy below which vehicles are subject to tax is 22.5 miles per gallon (MPG). Under S. 201, in the 1992 model year, vehicles with fuel economies less than 23.5 miles per gallon would be subject to tax; and in the 1993 model year, vehicles with fuel economies less than 24.5 miles per gallon would be subject to tax. In addition, the bill would annually increase the rate of tax applicable to vehicles with fuel economies below the threshold. The tables below report the tax which would apply under S. 201 for model year 1992 and for model year 2000 and beyond. The tables which would apply in intervening model years 1993–1999 are presented in the Appendix.

1992 model year automobiles

Fuel economy (miles per gallon)	Tax
At least 23.5	0
At least 22.5 but less than 23.5	$1,000
At least 21.5 but less than 22.5	1,300
At least 20.5 but less than 21.5	1,700
At least 19.5 but less than 20.5	2,200
At least 18.5 but less than 19.5	2,800
At least 17.5 but less than 18.5	3,500
At least 16.5 but less than 17.5	4,300
At least 15.5 but less than 16.5	5,200
At least 14.5 but less than 15.5	6,200
At least 13.5 but less than 14.5	7,200
At least 12.5 but less than 13.5	8,200
Less than 12.5	9,200

2000 and later model year automobiles

Fuel economy (miles per gallon)	Tax
At least 31.5	0
At least 30.5 but less than 31.5	$1,000
At least 29.5 but less than 30.5	1,300
At least 28.5 but less than 29.5	1,700
At least 27.5 but less than 28.5	2,200
At least 26.5 but less than 27.5	2,800
At least 25.5 but less than 26.5	3,500
At least 24.5 but less than 25.5	4,300
At least 23.5 but less than 24.5	5,200
At least 22.5 but less than 23.5	6,200
At least 21.5 but less than 22.5	7,200
At least 20.5 but less than 21.5	8,200
At least 19.5 but less than 20.5	9,200
At least 18.5 but less than 19.5	10,200
At least 17.5 but less than 18.5	11,400
At least 16.5 but less than 17.5	12,400
At least 15.5 but less than 16.5	13,400
At least 14.5 but less than 15.5	14,400
At least 13.5 but less than 14.5	15,400
Less than 13.5	16,400

The rates of tax specified in the above tables would be indexed for the rate of inflation using the GNP deflator and using 1991 as the base year for indexing.

Rates of credit

The following tables specify the amount of credit applicable to qualifying vehicles for model years 1993 and beyond.

Model years 1993 and 1994

Percentage by which a vehicle's fuel economy exceeds model type average fuel economy	Amount of credit
Less than 15 percent	0
15 to less than 20 percent	$250
20 to less than 25 percent	400
25 percent or greater	750
Less than 20 percent	0
20 to less than 25 percent	$400
25 to less than 30 percent	750
30 to less than 50 percent	1,000
50 to less than 75 percent	1,500
75 percent or greater	2,000

The amount of credit would not be indexed for inflation. The total credit allowed the taxpayer would not exceed the excess of the regular income tax for the taxable year reduced by the sum of credits allowed under code sections 27 (the foreign tax credit), 28 (the credit for clinical testing expenses for certain drugs for rare diseases or conditions), and 29 (the nonconventional fuels production credit) over the tentative minimum tax.

Effective date

The taxes imposed or increased under S. 201 would be effective with respect to 1992 and later model year automobiles. The tax credit would be effective for taxable years ending after December 31, 1991.

S. 741 (Senators Wirth, Hatfield, Daschle, Jeffords, Bryan, Fowler, Bingaman, and Adams) and S. 743 (Senator Wirth)

In general

S. 741 and S. 743 would retain the present-law gas guzzler tax and, in addition, would impose a tax at the time of sale on the purchase of each new motor vehicle sold in the United States, the fuel economy of which, as determined by the Administrator of the Environmental Protection Agency (EPA), is less than the sales-weighted average fuel economy of all new motor vehicles within the same class. The bills also would provide a rebate voucher at the time of purchase to the purchaser of each new motor vehicle purchased in the United States, the fuel economy of which exceeds the sales-weighted average fuel economy of all new motor vehicles within the same class.

In addition, the bills would impose a tax at the time of sale on the purchaser of each new motor vehicle sold in the United States, the composite safety factor of which is less than the sales weighted average composite safety factor of all new motor vehicles within the same class. A rebate voucher would be given at the time of purchase to the purchaser of each new motor vehicle purchased in the United States, the composite safety factor of which exceeds the sales-weighted average composite safety factor of all new motor vehicles within the same class. Rebate vouchers must be presented to the Secretary of the Treasury for payment of the rebate amount. Any such rebate received would be deemed a reduction in the price paid for the motor vehicle rather than income for Federal income tax purposes.

Calculation of tax and rebate

Fuel economy tax/rebate.—The fuel economy tax/rebate would be calculated by a formula which assesses a tax (rebate) of $10 for each gallon of gasoline estimated to be consumed annually by a given vehicle in excess of (less than, in the case of a rebate) the estimated average annual fuel consumption of all motor vehicles within that vehicle's class. The estimated average annual fuel consumption of a vehicle is determined by dividing 10,000 miles by the EPA estimated miles per gallon (MPG) rating of the vehicle. The computation of the estimated average fuel consumption of the vehicle's class is described below. The explicit formula is:

Tax/rebate = $10 x [M-M ^{1}], where
M = 10,000/mpg of vehicle, and
M ^{1} = estimated average annual fuel consumption of all vehicles in the vehicle's class.

Vehicle safety tax/rebate.—The vehicle safety tax/rebate would be calculated by a formula which assesses a tax (rebate) of $10 for each unit by which the composite safety factor of a vehicle exceeds (is less than, in the case of a rebate) the sales-weighted average composite safety factor of all motor vehicles within that vehicle's class. The explicit formula is:

Tax/rebate = $10 x [S-S ^{1}], where
S = composite safety factor of vehicle, and
S ^{1} = average composite safety factor of all vehicles in the vehicle's class.

The composite safety factor (S) is determined by crash test data gathered from tests conducted at 35 miles per hour under the test protocol set forth in 49 CFR section 571.208. The tests provide data on dummies positioned in driver's and front passenger's seats. For each dummy the Head Acceleration (H), Thorax Acceleration (T), and Left Leg Force (L) and Right Leg Force (R) are measured. The bills would compute a Driver's Injury Factor and a Passenger's Injury Factor as:

Driver's Injury Factor = H + (12.525 x T) + (0.11) x L + (0.11) x R
Passenger's Injury Factor = H + (12.525 x T) + (0.11) x L + (0.11) x R

The composite safety factor would then be determined as 0.1 multiplied by the sum of the Driver's Injury Factor plus one-half the value of the Passenger's Injury Factor.

Computation of vehicle class averages

Fuel consumption.—The sales weighted average fuel consumption applicable to the next model year would be calculated by first determining the average estimated fuel consumption of all vehicles

sold during the 12-month period spanning the first half of the current model year and the last half of the preceding model year. The average fuel consumption of such vehicles would be as determined by the Administrator of the EPA under section 2003(d) of title 15, United States Code. This average would then be adjusted [41] by the percentage change in average fuel economy for the preceding 12-month period.

Average composite safety factor.—The average composite safety factor for a vehicle class would be calculated by first determining the sales weighted average composite safety factor of all vehicles sold in the vehicle class in the 12-month period spanning the last half of the preceding model year and the first half of the current model year. This average would then be adjusted [42] by the percentage change in such average from the preceding 12-month period.

Other

The average fuel economy figures and average composite safety figures would be required to be determined no later than July 1 of each year. The fuel economy and safety tax/rebate applicable to each motor vehicle would be required to be published by the Secretary of the Treasury no later than July 31 of each year.

For motor vehicles propelled by fuels other than gasoline, the Secretary of the Treasury would be required to determine an equivalent estimated fuel consumption based on the amount of carbon dioxide emissions produced by such vehicles when compared to gasoline-powered vehicles.

The Secretary of the Treasury would be authorized to modify the composite safety factor formula to account for other factors such as side impact collisions or anti-lock braking systems, provided that the total value of safety taxes collected does not differ by more than 10 percent from the total value that would have been collected under the formula specified above.

Effective date

Neither bill provides a specific effective date for this provision.

Analysis

Taxes on specific automobiles to encourage energy conservation (or safety)

If the tax or credit is passed on to the consumer in the form of higher (lower, in the case of the credit) prices, through time, the demand for less fuel efficient cars should decline while the demand for more fuel efficient cars should increase. If the tax (credit) is borne by the producer in the form of lower (higher, in the case of the credit) profits per vehicle, manufacturers will find relatively less fuel efficient cars less profitable than currently may be the case. The profit motive, then, may induce manufacturers to produce more fuel efficient automobiles. Similarly, a tax or credit based on the measured safety performance of automobiles would be expected to change consumer choice among automobiles.

[41] The bills do not specify, but imply the adjustment shall be an increase.
[42] The bills do not specify, but imply the adjustment shall be an increase.

At present, the market for fuel efficient automobiles is dominated by imported automobiles. In the short run, a tax or credit rewarding fuel efficiency may lead to increased sales of imported cars at the expense of domestic manufacturers. To the extent that domestically manufactured automobiles outperform imported automobiles in crash tests, a tax based on safety may relatively benefit domestic manufacturers.

The impetus for the gas guzzler tax was to use the force of market prices to encourage purchasers of automobiles to choose models which are relatively more fuel efficient, and thereby generally foster energy conservation.[43] It is correct that to the extent the tax is passed on to the automobile purchaser and to the extent automobile purchasers are responsive to price differences, the present-law gas guzzler tax discourages the purchases of relatively less fuel efficient cars. However, the efficiency of imposing a gas guzzler tax with the goal of generating energy conservation more generally has been questioned.

The cost of each mile driven is less costly in a more fuel efficient automobile than in a less fuel efficient automobile. This may induce drivers to drive fuel efficient cars more than they otherwise would have in a less fuel efficient car. By raising the cost of new cars, the tax also may induce some consumers to retain and use their older, less fuel efficient cars longer.

In addition, automobile designs to achieve fuel efficiency may result in patterns of usage by consumers which lead to increased mileage per car. For example, smaller cars generally are more fuel efficient than larger cars. Smaller cars, however, generally have smaller seating capacity. As a result, parents may have to utilize three small, fuel efficient cars to transport their children's soccer team rather than two, larger, less fuel efficient cars. In addition, because the cost of the vehicle has been affected rather than the cost of fuel, drivers may not change driving habits to maximize fuel economy (e.g., driving slower). As a consequence, the gains in average automobile fuel economy may not necessarily completely translate into gains in energy conservation. Table 1 presents data on the average annual mileage per passenger car in the United States and the average fuel efficiency of passenger cars in the United States.

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[43] *See*, U.S. House of Representatives, *Report of the Committee on Ways and Means on Title II of H.R. 6831, The Energy Tax Act of 1977*, Report No. 95-496, July 13, 1977, pp. 48-49.

Table 1.—Number of Passenger Cars, Average Annual Mileage Per Car, and Average Fuel Efficiency 1966–1988

Year	Passenger cars (millions)	Thousands of miles per car	Miles per gallon
1966	78.1	9.92	14.1
1967	80.4	10.06	14.1
1968	83.6	10.14	13.9
1969	86.9	10.16	13.6
1970	89.2	10.27	13.5
1971	92.7	10.42	13.5
1972	97.1	10.52	13.4
1973	102.0	10.26	13.3
1974	104.9	9.61	13.4
1975	106.7	9.69	13.5
1976	110.4	9.79	13.5
1977	113.7	9.88	13.8
1978	116.6	9.84	14.0
1979	120,2	9.40	14.4
1980	121.7	9.14	15.5
1981	123.5	9.19	15.9
1982	123.7	9.43	16.7
1983	126.7	9.48	17.1
1984	127.9	9.56	17.8
1985	132.1	9.56	18.2
1986	135.4	9.61	18.3
1987	137.3	9.88	19.2
1988	141.3	[1] 10.12	[1] 20.0

[1] Estimate.

Source: Federal Highway Administration as reported in Energy Information Administration, Department of Energy, *Annual Energy Review 1989*, pp. 53 and 55.

While many other factors, such as the price of fuel, may affect the number of miles driven, Table 1 shows that between 1979 and 1988, average fuel economy of passenger cars has risen 39 percent, annual mileage per car has risen almost eight percent, and the number of cars has risen by almost 18 percent.[44]

The automobile purchaser makes his or her choice on the basis of many factors in addition to fuel economy. For example, the purchase of an automobile involves a decision about the automobile's seating capacity, luggage capacity, safety, design, and comfort. In this light, the purchase of an automobile represents the purchase of a bundle of often conflicting attributes. For example, reducing the weight of an automobile makes it more fuel efficient, but also may make it less safe; increasing cargo capacity may make for a less fuel efficient automobile. A tax or credit that is targeted at one dimension may bias the market against the other attributes. Consequently, gains from a tax on less safe vehicles or relatively fuel inefficient vehicles may cause the purchaser to inefficiently choose

[44] If measured from 1980 to 1988, fuel economy increased 29 percent, while annual mileage per car increased by almost 11 percent, and the number of cars increased by 16 percent.

the bundle of attributes in an automobile. The distortion of prices among automobiles created by such taxes may distort consumer choice, imposing explicit or implicit losses on consumer well-being. Some critics of downsizing of automobiles to achieve improved fuel economy argue that such design changes have cost the consumer in terms of safety, cargo capacity, seating capacity, and comfort.

Some economists argue that distortions of market prices may be justified only if market prices do not reflect the true social cost or social benefit of the product. The difference between the cost to the private person and the cost to society is called an externality. Some analysts suggest that purchasers of relatively fuel inefficient automobiles impose an externality on society because fuel inefficiency wastes natural resources and reduces the United States' energy and economic security. Other analysts suggest that hypothesized external costs relate to energy consumption rather than to the automobiles themselves and that gains in fuel conservation can more efficiently be attained by increasing the market price of fuel.[45] They argue that increasing the cost of fuel provides the consumer more options for conserving on fuel such as driving less, car pooling, taking mass transit, or purchasing a fuel efficient car, whereas raising the price of less fuel efficient cars is targeted at only one dimension of fuel use.

On the other hand, individuals may base decisions on the purchase of energy using consumer durables on incorrect data or fail to take proper account of economic costs of using such durables. For example, some argue that in the purchase of consumer durables which use energy, consumers use an excessively high discount rate in evaluating the value of relatively more energy efficient durables in comparison to less energy efficient durables.[46] Arguably, incorrect consumer decisions about the economic value of certain products create a market inefficiency which could be addressed through taxes designed to alter the price of such products.

Similarly, some argue that consumers do not undertake an informed calculus of the value of safety when making purchases. They argue that a lack of information creates an externality in the market place which might create a role for corrective taxation. Critics of this view observe that the market for auto insurance puts a market value on safety by varying rates both by the driver and the model of car. They further argue that if the market inefficien-

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[45] *See*, for example, Michael Munger, "The Cost of CAFE," unpublished working paper, Bureau of Economics, Federal Trade Commission, August 1985, and Andrew Kleit. "The Effect of Annual Changes in Automobile Fuel Economy Standards," *Journal of Regulatory Economics*, vol. 2, Summer 1990. These studies argue that policies designed to alter the fuel economy of vehicles produced for the marketplace, such as CAFE standards, are less efficient at generating fuel economy than would be an increase in the price of motor fuels achieved through an increase in the motor fuels excise tax. Kleit, for example, calculates that reducing consumption of gasoline by one gallon costs consumers approximately $10 in lost consumer welfare if achieved by increasing the CAFE standards, but would cost less than $1 in lost consumer welfare if achieved by increasing the price of gasoline.

[46] *See*, Jerry A. Hausman, "Individual Discount Rates and the Purchase and Utilization of Energy-using Durables," *Bell Journal of Economics and Management Science*, vol. 10, Spring 1979. Hausman's study concluded that the mean household discount rate for evaluating the purchase of a more efficient room air conditioner was between 15 and 25 percent in 1975 to 1976. These discount rates generally exceeded consumer loan rates at that time. In addition information about the relative efficiency of different models was available. During this time period, room air conditioners carried information tags reporting the energy efficiency and expected operating costs of various models.

cy arises from a lack of information, a more efficient outcome might be attained by provision of the information rather than through corrective tax policy. They note that the choice of a tax based on safety measures is likely to be arbitrary, and may not necessarily correspond to the value society gains from an increase in automobile safety.

Analysis specific to S. 201

S. 201 would annually increase the threshold fuel economy rating at which an automobile becomes subject to the gas guzzler tax and increase the rate of tax for those automobiles with fuel economy rates below the threshold. Unlike the present law gas guzzler tax, these taxes are indexed for inflation in order to preserve their real value. The bill also would provide a credit for the sale of relatively more fuel efficient automobiles. However, the value of the credit is not indexed for future inflation and its real value to the producer or consumer would be expected to decline over time.

Under the bill, gains in fuel economy are more valuable to relatively fuel inefficient automobiles than to relatively fuel efficient automobiles. A relatively fuel inefficient automobile generally can reduce its accompanying tax liability by improving its miles per gallon rating by one mile per gallon.[47] The maximum, unindexed credit a relatively fuel efficient car can receive is $750 in 1993 and 1994, and $2000 thereafter. If an automobile already qualifies for the maximum credit, an increase in its fuel economy rating generates no further tax benefit.

Analysis specific to S. 741 and S. 743

The calculation of the tax or rebate in S. 741 and S. 743 is in comparison to other automobiles within the vehicle's model class. In particular, the tax is calculated based on the deviation of a specific automobile from the mean of its class. While the application of the tax to model classes reduces the incentive of the market place to downsize, and rather is designed to encourage fuel (and safety in the case of the safety tax/rebate) gains within existing model classes, the value of gains within each model class is different.

For example, consider two automobiles each with fuel economy five miles per gallon lower than the average fuel economy of the applicable vehicle class. Car A is in a model class with an average fuel economy of 40 miles per gallon and car B is in a model class with an average fuel economy of 25 miles per gallon. If car A has an estimated fuel economy of 35 miles per gallon, then it will be subject to a tax of $357.[48] If car B has an estimated fuel economy of 20 miles per gallon, then it will be subject to a tax of $1,000.[49]

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[47] An automobile that moves from just below the threshold to above the threshold by one mile per gallon saves $1,000 in tax. For automobiles in the six categories immediately below the threshold level, the tax saving from a one mile per gallon improvement ranges from $300 to $900. Thereafter, the tax saving is $1,000 per mile per gallon gained with the exception of one $1,200 increment.

[48] This is calculated by dividing 10,000 by the 35 mpg rating of car A and subtracting the result from 10,000 divided by the 40 mpg average class rating. The difference is then multiplied by $10.

[49] This is calculated by dividing 10,000 by the 20 mpg rating of car B and subtracting the result from 10,000 divided by the 25 mpg average class rating. The difference is then multiplied by $10.

An additional fuel economy gain in a lower fuel economy model class is worth more than in a higher fuel economy model class. A similar analysis would apply to model classes with lower average safety values in comparison to model classes with higher average safety values. These examples may overstate the value of fuel economy gains because each model's performance will affect the average for the model class and subsequently affect the tax imposed or credit received on a specific automobile.

More generally, the value of the tax or credit will depend on the sales performance of other automobiles in the model class which may increase or decrease the value of the tax/credit applicable to any specific model depending upon the effect that sales of other automobiles have on the model average. Because the model average is computed with a lag compared to current sales, this may create uncertainty for producers who may attempt to plan investments based on the anticipated tax/credit applicable to future planned models. On the other hand, the moving average against which each automobile is compared may provide producers with the incentive to always increase fuel economy and safety, because the strategy of no change would rarely improve the competitive position of a given automobile in the absence of specific knowledge about the performance of competitors' newly introduced automobiles.

APPENDIX

Gas Guzzler Tax Rates for Model Years 1993 through 1999 Under S. 201

1993 model year automobiles

Fuel economy (miles per gallon)	Tax
At least 24.5	0
At least 23.5 but less than 24.5	$1,000
At least 22.5 but less than 23.5	1,300
At least 21.5 but less than 22.5	1,700
At least 20.5 but less than 21.5	2,200
At least 19.5 but less than 20.5	2,800
At least 18.5 but less than 19.5	3,500
At least 17.5 but less than 18.5	4,300
At least 16.5 but less than 17.5	5,200
At least 15.5 but less than 16.5	6,200
At least 14.5 but less than 15.5	7,200
At least 13.5 but less than 14.5	8,200
At least 12.5 but less than 13.5	9,200
Less than 12.5	10,200

1994 model year automobiles

Fuel economy (miles per gallon)	Tax
At least 25.5	0
At least 24.5 but less than 25.5	$1,000
At least 23.5 but less than 24.5	1,300
At least 22.5 but less than 23.5	1,700
At least 21.5 but less than 22.5	2,200
At least 20.5 but less than 21.5	2,800
At least 19.5 but less than 20.5	3,500
At least 18.5 but less than 19.5	4,300
At least 17.5 but less than 18.5	5,200
At least 16.5 but less than 17.5	6,200
At least 15.5 but less than 16.5	7,200
At least 14.5 but less than 15.5	8,200
At least 13.5 but less than 14.5	9,200
Less than 13.5	10,200

42

1995 model year automobiles

Fuel economy (miles per gallon)	Tax
At least 26.5	0
At least 25.5 but less than 26.5	$1,000
At least 24.5 but less than 25.5	1,300
At least 23.5 but less than 24.5	1,700
At least 22.5 but less than 23.5	2,200
At least 21.5 but less than 22.5	2,800
At least 20.5 but less than 21.5	3,500
At least 19.5 but less than 20.5	4,300
At least 18.5 but less than 19.5	5,200
At least 17.5 but less than 18.5	6,200
At least 16.5 but less than 17.5	7,200
At least 15.5 but less than 16.5	8,200
At least 14.5 but less than 15.5	9,200
At least 13.5 but less than 14.5	10,200
Less than 13.5	11,400

1996 model year automobiles

Fuel economy (miles per gallon)	Tax
At least 27.5	0
At least 26.5 but less than 27.5	$1,000
At least 25.5 but less than 26.5	1,300
At least 24.5 but less than 25.5	1,700
At least 23.5 but less than 24.5	2,200
At least 22.5 but less than 23.5	2,800
At least 21.5 but less than 22.5	3,500
At least 20.5 but less than 21.5	4,300
At least 19.5 but less than 20.5	5,200
At least 18.5 but less than 19.5	6,200
At least 17.5 but less than 18.5	7,200
At least 16.5 but less than 17.5	8,200
At least 15.5 but less than 16.5	9,200
At least 14.5 but less than 15.5	10,200
At least 13.5 but less than 14.5	11,400
Less than 13.5	12,400

1997 model year automobiles

Fuel economy (miles per gallon)	Tax
At least 28.5	0
At least 27.5 but less than 28.5	$1,000
At least 26.5 but less than 27.5	1,300
At least 25.5 but less than 26.5	1,700
At least 24.5 but less than 25.5	2,200
At least 23.5 but less than 24.5	2,800
At least 22.5 but less than 23.5	3,500
At least 21.5 but less than 22.5	4,300
At least 20.5 but less than 21.5	5,200
At least 19.5 but less than 20.5	6,200
At least 18.5 but less than 19.5	7,200
At least 17.5 but less than 18.5	8,200
At least 16.5 but less than 17.5	9,200
At least 15.5 but less than 16.5	10,200
At least 14.5 but less than 15.5	11,400
At least 13.5 but less than 14.5	12,400
Less than 13.5	13,400

1998 model year automobiles

Fuel economy (miles per gallon)	Tax
At least 29.5	0
At least 28.5 but less than 29.5	$1,000
At least 27.5 but less than 28.5	1,300
At least 26.5 but less than 27.5	1,700
At least 25.5 but less than 26.5	2,200
At least 24.5 but less than 25.5	2,800
At least 23.5 but less than 24.5	3,500
At least 22.5 but less than 23.5	4,300
At least 21.5 but less than 22.5	5,200
At least 20.5 but less than 21.5	6,200
At least 19.5 but less than 20.5	7,200
At least 18.5 but less than 19.5	8,200
At least 17.5 but less than 18.5	9,200
At least 16.5 but less than 17.5	10,200
At least 15.5 but less than 16.5	11,400
At least 14.5 but less than 15.5	12,400
At least 13.5 but less than 14.5	13,400
Less than 13.5	14,400

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1999 model year automobiles

Fuel economy (miles per gallon)	Tax
At least 30.5	0
At least 29.5 but less than 30.5	$1,000
At least 28.5 but less than 29.5	1,300
At least 27.5 but less than 28.5	1,700
At least 26.5 but less than 27.5	2,200
At least 25.5 but less than 26.5	2,800
At least 24.5 but less than 25.5	3,500
At least 23.5 but less than 24.5	4,300
At least 22.5 but less than 23.5	5,200
At least 21.5 but less than 22.5	6,200
At least 20.5 but less than 21.5	7,200
At least 19.5 but less than 20.5	8,200
At least 18.5 but less than 19.5	9,200
At least 17.5 but less than 18.5	10,200
At least 16.5 but less than 17.5	11,400
At least 15.5 but less than 16.5	12,400
At least 14.5 but less than 15.5	13,400
At least 13.5 but less than 14.5	14,400
Less than 13.5	15,400

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ERRATA for JCS-8-91

On page 32, the table at the bottom of the page should be as follows:

Model years 1993 and 1994

Percentage by which a vehicle's fuel economy exceeds model type average fuel economy	Amount of credit
Less than 15 percent	0
15 to less than 20 percent	$250
20 to less than 25 percent	490
25 percent or greater	750

Model years 1995 and beyond

Percentage by which a vehicle's fuel economy exceeds model type average fuel economy	Amount of credit
Less than 20 percent	0
20 to less than 25 percent	$400
25 to less than 30 percent	750
30 to less than 50 percent	1,000
50 to less than 75 percent	1,500
75 percent or greater	2,000

PREPARED STATEMENT OF SENATOR PETE V. DOMENICI

Thank you, Mr. Chairman. I welcome the opportunity to testify before the Finance Committee's Subcommittee on Energy and Agricultural Taxation today. Later today, I am going to introduce the Conservation and Energy Efficient Investment Act of 1991. This bill changes the tax treatment of certain conservation rebates. Many of you have seen ads in the local papers about conservation rebates. Buy a heat pump and get a $300 rebate or a credit on your utility bill. Buy your family a new stove and get $150 back.

While all the ads sound appealing, not all rebates are created equal. Not all rebates result in energy efficiency and conservation. Consequently, all rebates should not be treated equally under the tax code.

Some utility companies offer rebates as part of their demand management program to encourage consumers to purchase the most efficient appliances available in the marketplace. This encourages conservation. These are good programs and I believe tax policy should encourage them. My bill would provide a tax incentive for this type of rebate.

Other utility companies have promotional programs to get people to buy one type of appliance instead of another, with the objective of selling more energy. Our tax system should NOT favor that rebate species. My bill would not provide a tax incentive for this type of promotional rebate program.

It used to be that all conservation rebates were not taxed as income to the consumer.

That changed in February of 1989, when the Internal Revenue Service issued a technical advice memorandum which held that cash payments to encourage the installation of alternative heating systems were gross income to the recipients. In other words, in addition to spending a lot of money on an appliance or piece of equipment in order to conserve energy, the customer who received a rebate must also pay tax on that rebate. This tax policy effectively reduces the size of the rebate and the customer's incentive to invest in energy saving equipment.

On June 11, 1991, the Internal Revenue Service issued a second opinion and reversed itself for certain electric nonrefundable rebates.

In my opinion, both rulings were half right and half wrong.

It is wrong to tax rebates on the most energy efficient equipment in the market place. It is wrong to penalize true conservation.

It is correct to tax rebates on equipment that result in greater energy consumption than necessary, especially in these tight budgetary times. My bill would correct the portion of the ruling that is misguided and restore a favorable treatment for true energy conservation rebates.

The Federal government has developed minimum energy conservation standards for appliances. In addition, the Federal Trade Commission's Appliance Labeling Program already exists and could facilitate this targeted approach to energy conservation rebates. Under Section 324 of the Energy Policy and Conservation Act of 1975 the disclosure of energy efficiency and the cost to operate various appliances is required. Labels are required for home heating and cooling systems, heat pumps, water heaters, freezers, and dishwashers. These are most of the same appliances that are the subject of rebate programs.

The labels are prominently displaced on each appliance and they are easy to understand. An additional line could be added to the label stating whether the appliance, if purchased in conjunction with a rebate program, would qualify for favorable income tax treatment.

Under this approach the public would be better informed, and the most energy efficient equipment would be an attractive choice for consumers. Everyone would benefit. The country would be pursuing an intelligent energy conservation and tax policy. The customer would get an immediate incentive to invest in a device that would save on energy and utility bills over the long run, and the utility would have the opportunity to reduce demand. In some cases, demand is reduced enough that the utility would not have to build an additional power plant. To them, construction is more expensive than conservation.

Chairman Daschle, Representative Barbara Kennelly, Senator Symms, and others have introduced energy conservation rebate legislation. I appreciate all the work they have done on this issue. But wanted to take the "good conservation policy approach" to encourage small businesses, schools and hospitals to use cogeneration where, and when they have the opportunity.

The idea of favorable tax treatment for conservation rebates doesn't come from out of the blue. The historical exclusion of trade rebates and discounts from gross income is based on long-standing case law which supports the position that energy-

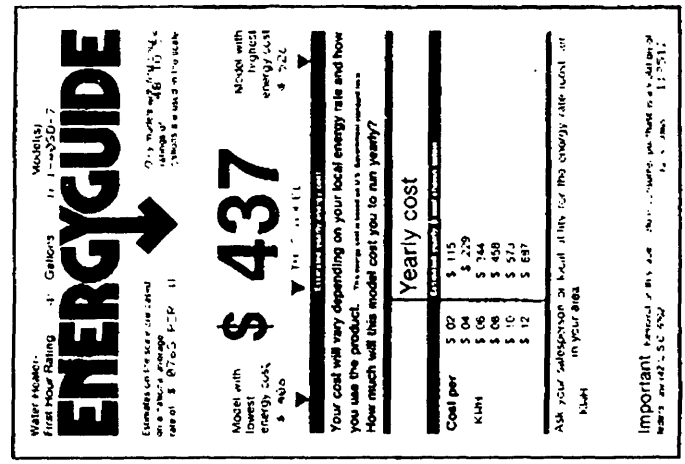
efficiency credits or payments represent an adjustment to the price of either the electricity or the equipment depending on the facts of the incentive program involved.

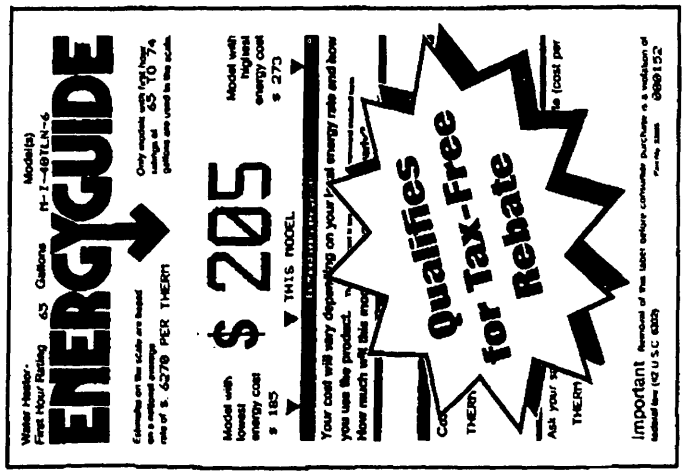
Yes, this bill would result in a small revenue loss to the federal government. Preliminary estimates for similar bills are at least $500 million over five years. (This is the estimate for the Kennelly bill but it could be considerably reduced as a result of the June 11, 1991 Internal Revenue technical advice memorandum).

Regardless, any revenue loss would need to be offset under the new pay-as-you-go requirements of the Budget Enforcement Act.

I will be happy to work with the Committee to find an offset, as well as to answer any questions and respond to comments you may have on this legislation.

Conservation & Energy Efficient Investment Act of 1991





PREPARED STATEMENT OF LOUIS J. GAMBACCINI

Thank you Mr. chairman and members of the committee for inviting me to testify. My name is Louis J. Gambaccini, and I am the Chief Operations Officer and General Manager of the Southeastern Pennsylvania Transportation Authority (SEPTA). SEPTA provides public transportation service in the 5-county, 2,200 square-mile Greater Philadelphia region, home to 3.7 million people. Our 2,500 buses, subways, trains and trolleys operate along 3,500 route-miles of service.

I testify today on behalf of the American Public Transit Association (APTA). APTA represents over 1,000 members, including bus and rapid transit systems and organizations responsible for planning, designing, constructing, financing and operating transit systems.

In the debate and discussion of this year's reauthorization of the Surface Transportation Assistance Act, the phrase "level playing field" keeps popping up. Advocates for transit, of which I am surely one, insist that the federal government level the playing field between transit and highways.

The implication of this rhetoric is that the current playing field is not level, that it is biased towards highways. I believe that the subject of this hearing, the federal income tax code's inequitable treatment of employer-subsidized transit passes is one of the most dramatic cases of the inequity of the present playing field.

The inequity can best be understood by an example. An employer in center city Philadelphia rents a parking space for an employee who lives in the suburbs for $300 per month. That expenditure is a tax deductible business expense for the business. For the employee, this a $300 a month benefit, tax free. The average value of employer-provided parking across the nation, by the way, is $58 per month.

What if the employee would like to take a train to her job? She hates fighting the traffic, and does not want to burn fuel recklessly and contribute to air pollution while stewing in stop-and-go traffic. What if the employer buys a $100 monthly pass for her to ride the train, saving her the aggravation and itself $200 per month? Then she has to report this $100 purchase as income to the Internal Revenue Service, and has to pay taxes on it.

Today an employer can provide only $15 a month in transit subsidy tax free. Due to a "cliff" provision, if an employee gives, say $16, then the entire $16 is taxable income.

Given this discrepancy, is it any wonder that people drive cars? The federal income tax code penalizes transit riders and provides a substantial incentive to use the automobile.

Federal policy should be just the opposite. Transit subsidies should be tax exempt and parking should be taxed. Such a pro-transit and anti-auto bias is typical of the policies of most other nations.

Let me reassure you, my feet are firmly planted on this planet, and I realize that it is highly unlikely given the state of the present political world that Congress would adopt such a policy. The Congress should take these three measures:

(1) Increase as high as possible the tax free cap, now $15 per month, on monthly transit pass benefits;
(2) Eliminate the "cliff" provision that makes the entire monthly benefit subject to taxation if the cap is exceeded; and,
(3) Eliminate the taxation of employer-provided vanpool benefits.

S. 26 scores well on these three counts. Senator Moynihan's proposal raises the tax exempt amount of employer-transit subsidy to $60 per month and eliminates the "cliff" provision. This means employers will be able to offset a significant portion of the costs of commuting by transit, just as they can now for auto commuters. In addition, the bill also eliminates the taxation of employer-provided vanpool benefits.

There have been numerous bills introduced in both houses toward these ends. Philadelphia Congressman Thomas Foglietta has introduced H.R. 1442 that would impose no cap on the value of an employer-provided transit pass.

In addition, I would like to extend my support to a bill Senator Bradley introduced last week, S. 1244. S. 1244 would broaden the tax exemption for employer-provided parking beyond employee parking adjacent to the workplace to employee parking at transit stations.

Such measures are good public policy for many reasons. Leveling the playing field will increase transit ridership, more people will get to where they're going in fewer vehicles. The burden on taxpayers of ceaseless highway construction will be lessened, and other benefits will flow to society at large, including:

• Cleaner Air: Every Congressional sponsor of transit pass legislation notes the legislation's potential to help clean the air in America's metropolitan areas. Motor vehicles are a major target of last year's clean Air Act Amendments because they are a major source of ozone-precursors and carbon monoxide, as well as of carbon dioxide and other "greenhouse gases" that contribute to global warming. The 1990 legislation recognizes that it is important to limit increases in vehicle-miles-travelled as a means of limiting emissions.

Transit can make an impressive contribution to cleaner air in nonattainment areas. When one person leaves the car at home and decides to commute by transit, 78 fewer pounds of vehicle exhaust pollutants are emitted over the course of one year. Higher average vehicle occupancy is the only means of ensuring that the same number of people can reach their destinations without increasing the number of vehicles on the road and, ultimately, the amount of air pollution.

• Reduced Health Care Costs: Air pollution poses adverse health effects on everyone, not just people with respiratory problems. The American Lung Association estimated that the cost of air pollution-related illnesses in this nation is $40 billion per year. A recent study of Southern California residents suggests that this estimate may be low. Long-term exposure to air pollution causes permanent damage to the lungs and respiratory system. These problems occur not just in Southern California, but in other ozone non-attainment regions.

• Improved Energy Efficiency: Any viable national strategy for energy independence must confront transportation-related energy use. Transportation accounts for 60% of the petroleum consumed in this country. Transit offers an energy-saving alternative to single-occupant vehicles. Indeed, the President recognized this fact in his National Energy policy, which states in part:

> "The Federal Government will encourage the use of mass transit in place of private, single-occupancy motor vehicles for commuting by increasing the amount of tax-free transit benefits that employers may provide to employees. In addition, the Administration will implement a series of measures to encourage increased use of carpools, vanpools, and transit, including increased availability of high-occupancy-vehicle (HOV) right-of-way and improved public transportation services. Studies and demonstration projects have consistently shown that mass transportation, carpools, vanpools, and HOV lanes are the quickest, cheapest ways to improve transportation energy use and reduce commuter congestion. As part of the long-term effort to improve system efficiency, the Government will continue to investigate and implement means for encouraging mass transit and ride sharing."

• Reduced Congestion: Transit can reduce congestion, which threatens America's economic productivity and quality of life. A recent report by the General Accounting Office places the annual cost of congestion at $100 billion per year. At the present rate of growth, the annual time American workers waste in traffic congestion will increase by the year 2005 to more than five fold what it is today according to a recent Transportation Research Board study. Passengers sit idle while their cars burn fuel and pollute the air.

I believe that it was for all these reasons that the Senate's proposed reauthorization of the Surface Transportation Assistance Act calls for transit pass reform.

I can speak from personal experience that there is a demand, even under current law, for programs to encourage businesses to subsidize transit use by employees. In the mid-1980s, while I was working as an Assistant Executive Director of the Port Authority of New York and New Jersey, we surveyed New York-bound motorists crossing over and under the Hudson River. We discovered that 64% of these motorists were receiving a subsidy, usually free parking, from their employers. Over 25% of these drivers expressed a willingness to use public transportation if offered a comparable transit subsidy.

In 1987, I led an effort to establish the TransitChek program, a way for businesses to purchase $15 per month vouchers for employee transit use. Today, over 1,300 employers offer every month TransitChek benefits to over 20,000 employees throughout the New York area. Transit ridership is up and auto use is down.

Last Monday, June 10, 1991, I joined the Delaware Valley Regional Planning Commission to announce a similar program for the Greater Philadelphia area. Early response from businesses in and around Philadelphia is wholly positive.

The Internal Revenue Service (IRS) recently unveiled a regulatory proposal to raise the amount of transit benefits that are tax exempt from $15 per month to $21. This proposal, although a step in the right direction, is inadequate for two reasons. First, it does not level the playing field. $21 per month is still far less than the $58

per month average tax free employer-provided parking subsidy. Second, the IRS does not propose to eliminate the "cliff" provision.

Until the federal government raises the tax free dollar level to a comparable level and eliminates the "cliff" provision, employers will not be able to offset a significant portion of the costs of transit commuting. More important, with the benefit level so limited, programs such as TransitChek will not be able to garner the participation of the largest companies, those few firms that employ a large portion of the work force. The playing field will remain tilted toward the automobile.

Transit pass reform will benefit small urbanized and rural areas as well as large urbanized areas. Public transportation is a valuable asset for rural areas and small urbanized areas. More than half of APTA's nearly 500 member transit systems are small operators, operating fewer than 100 buses. These transit systems are a vital link holding many communities together.

The Urban Mass Transportation Administration's Section 18 non-urban program is a crucial element of rural development efforts that create jobs. For many, transit service in rural and small urbanized areas makes the difference between training and jobs and continued unemployment. Transit pass reform has the potential to benefit these areas as well as larger urbanized areas.

There would be another benefit to S. 26, one that many overlook. Employer-provided transit checks link the local business community to the transit system. Corporate executives often notice the limos delivering guests and even the semis delivering raw materials. Still, the transit system that brings in employees goes largely unnoticed. Employer-subsidized transit passes are a way to connect businesses to the transit system, to get the business community interested in how the system runs. Nothing but good can come out of this type of community involvement.

I would like to close with the story of one of the first meetings I had upon becoming General Manager at SEPTA. I met with the Chairman of the Provident Mutual Insurance Company. Provident Mutual's headquarters are located in the heart of center City Philadelphia, and over 600 people work there.

The Chairman told me that he never really thought about how all his people got to work each day until he came across the fact that his company, with 600 employees, rented precisely five parking spaces in the parking lot adjacent to the office building. The other 595 either rent their own parking space at $300 per month, or they walk, bike, skate, or, for the overwhelming preponderance, ride SEPTA to work.

It was at this point he realized the importance of public transit to his business, and to businesses throughout southeast Pennsylvania. He has since become the Chairman of a broad-based coalition of 350 Delaware Valley organizations committed to obtaining increased funding for public transportation.

Among the overall set of issues facing this nation and the world, S. 26 may seem like a small item. Indeed as the results of a recent study the United States Department of Transportation commissioned show, the fiscal impact would be small, likely under $20 million. Still, I can think of few measures before the congress that could do more to dramatically begin to point the nation in the right direction. We must work in all reasonable ways to reduce congestion, clean the air, conserve energy, and boost the economy. S. 26 is not only a reasonable step and a modest step, but also one that will deliver a disproportionate array of benefits to society as a whole. I urge the Senate to approve S. 26.

SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY,
Philadelphia, PA, July 3, 1991.

Hon. THOMAS A. DASCHLE, *Chairman,*
Subcommittee on Energy and Agricultural Taxation,
Committee on Finance,
317 Senate Hart Office Building,
Washington, DC.

Dear Senator Daschle: I testified in favor of transit pass reform at the June 14, 1991 meeting of the Energy and Agricultural Taxation Subcommittee. I found the hearing informative, productive and encouraging, and I thank you for having me testify.

At the hearing, you asked me to submit to the committee an estimate of the effect on ridership on the SEPTA system of increasing the fringe benefit cap on employer-provided transit passes to $60 and eliminating the "cliff" provision.

SEPTA's Finance Department estimates that, two years after enactment of transit pass reform legislation, nearly 30% of the 120,000 passes we currently sell would be employer-subsidized. In addition, we project an overall increase in ridership of

5% per year over the first two years, an extra 60,000 trips per day as people decide to commute on employer-subsidized transit rather than drive to an employer-provided parking space. The regional and national economy would reap the benefits of reduced congestion, air pollution, and fuel consumption.

I am sending a copy of this letter to committee staff for inclusion in the hearing record.

If you have an additional information, please do not hesitate to contact me.

Thank you for your time and interest.

Sincerely,

LOUIS J. GAMBACCINI, *Chief Operations Officer/General Manager.*

STATEMENT OF MICHAEL I. GERMAN

Mr. Chairman and Members of the Subcommittee: I am Michael I. German, senior vice president of the American Gas Association (A.G.A.). A.G.A. is a national trade association comprised of approximately 250 natural gas distribution and transmission companies. Collectively, these companies account for approximately 85 percent of the nation's total annual gas utility sales.

I am pleased to appear before the Subcommittee this morning to present A.G.A.'s views in support of Federal tax proposals which encourage consumers of natural gas, electricity and water to use and conserve energy efficiently. A.G.A. urges Congress to enact Federal tax legislation allowing such utility customers to exclude from their taxable income the value of any rebates or subsidies these customers receive from their local utilities for measures that conserve energy.

I. TAX POLICY AND NATIONAL ENERGY GOALS

A primary objective of the Administration's National Energy Strategy is the need to improve energy conservation nationally in an economically rational manner. Conserving energy is seen as an essential element of a balanced energy policy. Promoting the efficient use of energy can reduce consumer energy costs, reduce the amount of pollution generated, and simultaneously reduce the drag on the U.S. economy that results from the need for imported oil.

Treating rebates or any other form of utility conservation subsidy as taxable income to the customer discourages energy conservation and energy efficient behavior. This will either lower participation by customers or increase the overall conservation program costs to the utility (if customers are made whole for the added tax cost). The natural gas industry spends millions of dollars annually to assist residential customers implement conservation measures. Rebates are an important part of this overall effort. Taxing of these rebates is tantamount to imposing a sales tax on an energy-savings benefit to the consumer. Moreover, these price reductions, which are critical to induce customers to participate in conservation programs, should be treated by utilities as a reduction to gross receipts for tax purposes.

Many commercial and industrial customers, relying upon the National Energy Conservation Policy Act (NECPA), used incentives provided by utilities to invest in more efficient capital equipment. To their detriment, the provisions of NECPA that excluded conservation rebates from the utility customers' taxable income were removed. Thus, many customers may be inclined to abandoned their conservation programs as a result of this disincentive. The Federal Tax Code must encourage, not discourage, the efficient use of energy consistent with sound public policy.

II. FEDERAL CONSERVATION POLICY SHOULD BE BASED ON "RESOURCE ENERGY ANALYSIS"

Federal policy for promoting energy conservation and efficiency have by and large focused on end-use efficiencies for evaluating energy savings. This approach only partially addresses energy conservation and ignores opportunities to achieve other efficiency gains. Moreover, evaluating energy efficiency or conservation on the basis of energy consumed at the point of consumption, "end-use" efficiency or "site-based analysis," ignores inefficiencies that exist between the point primary energy is extracted through the point where energy is processed or converted and applied to end-use purposes.

The most appropriate means of measuring energy efficiency and developing programs and techniques to promote energy conservation is by "resource energy analysis" or "full-cycle energy trajectory." An energy trajectory measures the amount of energy used or lost in the extraction, processing, transportation, conversion, distribution and use of all forms of energy. The efficiency of a full-cycle energy trajectory

refers to the total amount of energy that must be produced to satisfy a specific end-use energy demand, recognizing that energy is lost at many points along the trajectory. For example, nearly four British thermal units (Btu) of coal must be mined in order to provide one Btu of useful heat from an electric water heater using electricity produced from an existing coal-fired powerplant. The efficiency of an end-use appliance contributes to a fuel system's total efficiency. Equally important to overall efficiency are the processes which occur prior to the delivery of energy to the end-use application.

A gas water heater operating at a 65 percent level of efficiency will use less than half the energy consumed by an electric water heater operating at a 96 percent level of efficiency because of the energy losses that occur during the generation of electricity. The more efficient trajectory is one that requires less total energy production to deliver and utilize a unit of end-use energy. From a Federal policymaking standpoint, legislative proposals should favor resource conservation measures with high energy efficiency trajectories. In no instances should tax benefits be given to promote the inefficient use of energy resources.

III. NATURAL GAS MUST BE INCLUDED IN FEDERAL TAX AND CONSERVATION LEGISLATION

As natural gas consumption constitutes a significant portion of the residential and commercial markets, and is an efficiently delivered and clean-burning fuel, natural gas must be included in any Federal tax incentive program aimed at encouraging conservation. Each of the pending tax bills, except S. 922, [1] would allow customers to exclude from their gross income any rebate received from an electric or gas utility for conservation purposes. S. 83 and S. 741 would also extend tax benefits to conservers of water.

A. Market Share

Natural gas and electricity are the principal energy sources consumed in the residential and commercial sectors. Natural gas accounts for nearly 44 percent of the direct consumption of energy in these sectors, while electricity accounts for 39 percent. [2] For new buildings, natural gas and electricity are the dominant fuel choices with petroleum becoming insignificant in most regions of the country. As the regulatory induced shortages of the 1970s gave way to an efficient free market for natural gas supplies, gas has recaptured a significant marketshare from electricity. (*See* Appendix I). This movement to natural gas use has not only positive ramifications for consumers' economics, but also for improved energy efficiency and for preservation and improvement of environmental quality.

B. Economics

Natural gas is more economical for the consumer in most residential applications where natural gas and electricity compete. In addition, because natural gas is a "primary energy source" while electricity is a highly processed energy product, the use of electricity in functions that could be served by natural gas is inefficient.

According to Department of Energy (DOE) data, [3] natural gas has significant cost advantages relative to electricity in both space conditioning (heating and cooling) [4] and water heating in many regions of the country. For example, a home in the 1,000 to 2,000 square foot range located in the West South Central region uses on average 45.7 MMBtus of natural gas for home heating at an annual cost of $220.40. [5] The

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[1] Several bills have been introduced in Congress to exclude from gross income payments made by public utilities to subsidize the cost of energy and water conservation services and measures. On the Senate side: (1) Steve Symms (R-ID) introduced S. 83 on January 14, 1991 (bill covers gas, electric and water customers); (2) Arlen Specter (R-PA) introduced S. 326 on January 31, 1991 (part of a comprehensive energy conservation bill that would repeal tax on utility rebates for electric and gas consumers); (3) Bill Bradley (D-NJ) introduced S. 679 on March 14, 1991 extending the tax benefits to gas and electric customers; (4) Tim Wirth (D-CO) introduced S. 741 (§831 would provide tax benefits for gas, electric and water, but not cogeneration facilities); and (5) Tom Daschle (D-SD) introduced S. 922 on April 9, 1991 that would provide tax benefits only for electric consumers. On the House side, Phil Sharpe (D-IN) introduced H.R. 780 which would provide tax incentives to gas, electric and water consumers but not cogeneration facilities, while Barbara Kennelly (D-CT) introduced H.R. 1007 on February 20, 1991, which is similar to S. 922.

[2] AMERICAN GAS ASSOCIATION 1990 GAS FACTS.

[3] U.S. Department of Energy, RECS Part 2, p. 155.

[4] The most significant component of consumer energy consumptions is for space heating which accounts for 55 percent of annual household energy consumption on average, but can reach upwards to 70 percent in colder climates.

[5] This cost estimate is based on the U.S. Department of Energy's published RECS price.

costs of using electricity to heat the same house in the same region of the country can cost the consumer $449.50 annually. [6] Over a ten-year period, the net present value of energy cost savings for the gas-heated home is $1,715, using a 10 percent discount rate.

Water heating is second to space conditioning as a consumer of energy in residential applications. Water heating consumes approximately 17 percent of all residential energy use. [7] Appendix II shows a cost comparison of natural gas and electric water heating using data obtained from the Gas Research Institute [8] and data required by the Federal Trade Commission. The chart contained in the Appendix shows the savings of using natural gas equipment ranges from $245 to $374 annually over electric equipment used for water heating. The net present value range of this savings over a 10-year period is $1,505 to $2,298, using a 10 percent discount rate.

C. Energy Efficiency

When compared to electricity or other fossil fuels, natural gas is delivered to the consumers with less energy wasted. A.G.A.'s data and analysis indicate natural gas use requires less energy production to deliver a unit of usable end-use energy. [9] Based on a total trajectory efficiency of 71 to 88 percent for natural gas, approximately 114 to 141 Btus of natural gas would have to be produced to provide 100 Btus of heat in the home. In contrast, the resource requirement for oil ranges from 128 to 149 Btus and the range for fossil-fuel based electricity is 139 to 189 Btus for heat pumps.

According to other A.G.A. published documents, [10] the cumulative efficiency of the delivery of natural gas is 91 percent, meaning that 91 MMBtus of energy are delivered to a consumer's meter for every 100 MMBtus of energy produced. See Appendix III which contains a comparison of the energy trajectory efficiencies of natural gas, electricity, coal and oil. This cumulative efficiency of the full-cycle energy trajectory for natural gas is roughly three times the efficiency of electricity, which ranges from 26 percent for existing oil-based generating facilities to 37 percent for newly-built natural gas generating facilities.

The total efficiency of energy systems is the product of the efficiency of the production and delivery infrastructure and the efficiency of the end-use appliance. Electrical appliances are oftentimes perceived to be highly efficient because they use less energy delivered at the home. However, any advantages perceived within the home are generally inadequate to compensate for significant efficiency losses that occur in electricity generation and transmission.

In terms of total trajectory efficiency, natural gas, at efficiencies ranging from 71 to 80 percent, is significantly more efficient than fuel oil and electric heat pumps—whose efficiencies range from 67 to 78 percent, and 53 to 72 percent, respectively. [11] Natural gas is also significantly more efficient than electric resistance heat, which has an average full-cycle efficiency of 27 percent. Electricity's superiority in terms of end-use efficiency is not enough to compensate for the relative inefficiency of its overall trajectory. Thus, natural gas deserves favorable tax incentives as proposed for electricity.

D. Environmental Impact

Natural gas possesses inherent chemical properties which make it the cleanest burning fossil fuel and its use produces only a fraction of the emissions that are produced by oil and coal. Appendix IV shows that natural gas combustion emits less of every criteria pollutant controlled under the National Ambient Air Quality Standards than any other fossil fuel.

Electric generation, on the other hand, is the principal stationary source of sulfur dioxide and nitrogen oxide emissions into the atmosphere as well as a major source of small particulates. Natural gas combustion emits virtually no sulfur dioxides or particulates. In addition, natural gas typically emits only 60 percent of the nitrogen oxides of oil combustion and 26 percent of the emissions from coal.

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[6] This cost estimate is derived using the U.S. Department of Energy's RECS prices times the amount of energy consumed.

[7] GAS RESEARCH INSTITUTE, BASELINE PROJECTION DATA BASE, 1991 ed.

[8] Id.

[9] American Gas Association, "Home Heating Efficiencies for Natural Gas, Fuel Oil and Electricity," PLANNING AND ANALYSIS ISSUE BRIEF 1990-13 (October 29, 1991) Arlington, VA.

[10] American Gas Association, "A Comparison of Carbon Dioxide Emissions Attributable to New Natural Gas and All-Electric Homes," PLANNING AND ANALYSIS ENERGY ANALYSIS 1990-5 (October 31, 1990) Arlington, Va.

[11] Note, supra note 9.

While natural gas use in electric plants can reduce the environmental costs of electric generation, the direct use of natural gas in end-use applications provides additional environmental benefits even compared to gas-fired generation. When the emissions from the full-cycle energy trajectory are considered, use of natural gas space heating and appliances results in only 15 to 20 percent of the total air emissions, and less than one percent of both the total water pollutants and noncombustible solid wastes, that result from comparable electric applications. [12]

According to the Environmental Protection Agency, [13] the use of natural gas in space water heating and cooking could reduce carbon dioxide (CO_2) [14] emissions by 68 percent compared to electricity. Such emissions could be reduced for clothes drying by 78 percent when the analogy is made.

The CO_2 emissions attributable to new natural gas-based residences are significantly lower than those attributable to comparable all-electric residences. The difference was as high as 65 percent lower in some cases. (See Appendix V which compares the annual emissions of CO_2 attributable to new gas and all-electric homes in the 1,500 and 3,000 square feet size areas.) The A.G.A. study [15] found that the annual CO_2 emissions attributable to a new 1,500 square foot natural gas-based home (13,000 pounds) to have approximately 42 percent of the emissions attributable to an all-electric residence supplied with electricity from existing power plants.

An all-electric home fueled by an existing coal-fired power plant has the highest CO_2-emitting trajectory in a moderate climate region, according to the A.G.A. study. [16] The total emission exceeded 34,000 pounds per year. An emission of 13,700 pounds of CO_2 is produced annually in supplying a similar all-electric home with a gas-fired power plant.

When the size of the home is doubled from 1,500 to 3,000 square feet, CO_2 emissions increase by roughly 26 percent. The emissions of the natural gas-based house rise from 13,000 to 16,800 pounds per year, while those of the all-electric home rise to as much as 43,000 pounds per year for existing coal-fired power plants. Thus, regardless of the size of the house, an all-electric house relying on the current mix of fuel sources for the generation of electricity will contribute at least twice as much CO_2 to the environment as a comparable size home containing natural gas appliances. Because of the cost-effectiveness and efficiency of delivering and using natural gas and its contributions to a cleaner environment, utility customers who consume natural gas should be offered tax incentives to undertake conservation measures as proposed for electric consumers in pending legislation.

IV. EXCEPTION TO PROPOSED TAX INCENTIVE LEGISLATION

A.G.A. strongly urges Congress not to apply the tax benefits of pending utility rebate legislation to any measure or property that results in increased primary energy consumption compared to alternative sources of energy available in the marketplace. A.G.A. encourages Federal and state government officials to evaluate energy conservation, energy efficiency and demand-side management programs with a critical eye toward whether those programs mask promotional activities and appliance sales under the guise of promoting conservation. Tax incentives should only be available for those programs that truly promote conservation of the nation's primary energy sources.

Promotional practices for appliances oftentimes distort the economics of fuel decisions and override consumers' choice. These practices are often counterproductive from both the perspective of the energy consumer and overall energy efficiency. Consumer energy choices are particularly affected by promotional practices which alter initial costs of the equipment. The electric industry offers many subsidies and discounts to offset the initial purchase cost of electric appliances in order to preserve or expand market share. This appliance marketing policy has enabled some

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[12] American Gas Association, "A Comparison of the Full-Cycle Emissions of Natural Gas and Electric Residences," PLANNING AND ANALYSIS ENERGY ANALYSIS 1984-5 (March 30, 1984) Arlington, VA.

[13] United States Environmental Protection Agency, Global Climate Division, "Natural Gas: Can It Play a Major Role Limiting Greenhouse Warming?" (November 12, 1989).

[14] Carbon dioxide (CO_2) is considered to be the primary "greenhouse gas" thought to contribute to global warming. CO_2 is formed when carbons containing fuels, such as coal, oil, natural gas or wood, are combusted. CO_2 emission levels per unit of heat depend on both the type and quantity of fuel consumed. For example, in end-use applications, natural gas emits only about 55 percent as much CO_2 as does coal per million Btus combusted, and about two-thirds as much as residual oil.

[15] Note, supra note 10. The estimate of carbon dioxide emission is based upon the current national mix of fossil fuels in a moderate climate range.

[16] Id.

electric utilities to get favorable ratebase treatment for promotional subsidies under the guise of "demand side management."

Studies have shown that consumers can place an inordinate emphasis on initial purchase cost differentials when choosing appliances. [17] In some instances, these appliances cause the purchaser to use more, not less, energy over the life of the product. Often a consumer will choose a less efficient appliance even when the payback period from energy savings is less than two years. The establishment of first cost differentials through rebates may therefore result in tremendous energy and economic inefficiency and environmental degradation.

When analyzing promotional practices, regulators should consider consumer costs, energy efficiency and the full-cycle environmental effects of such practices. Any promotional practice should further the public policy goal of conserving energy. The resource energy analysis should be utilized within the context of the life of the appliances involved in addition to short-term consumer costs and overall energy efficiency considerations. Under no conditions should practices be permitted which result in greater costs to the consumer, inefficient use of energy resources or increased environmental damage.

Thus, we urge Congress to amend pending legislation to include the following language:

This section shall not apply to any measure or property that results in increased primary energy consumption compared to alternatives available in the marketplace. This proposed language will help ensure that appliances or other property purchased and installed by the consumer as part of a promotional or marketing program under the guise of conserving energy, which cause the consumer to use more primary energy, would be ineligible for the tax benefits. A.G.A. believes the reduction in lost revenues to the government could be substantial, if measures such as certain promotional practices which increase primary energy use, are included in taxable income.

V. ALTERNATIVE FUELS INCENTIVE ACT OF 1991

A.G.A. reiterates its strong and continued support of S. 1178, "The Alternative Fuels Incentive Act of 1991," as introduced by Senator Jay Rockefeller on May 23, 1991, which was addressed yesterday by this Subcommittee. That bill would allow eligible taxpayers to expense certain factory-built and retrofit automotive and refueling station equipment to enable a vehicle to run on clean-burning alternative fuels. Not only does the use of clean-burning fuels such as natural gas in vehicles meet the mandates of the Clean Air Act Amendments of 1990, but is also helps the nation reduce its reliance on unsecured imports of petroleum.

VI. CONCLUSION

Federal legislation to repeal the tax on utility rebates is needed to provide utility customers incentives to conserve and use efficiently-delivered energy. Utilities should be allowed to treat these incentives as a reduction in gross receipts for tax purposes. Natural gas naturally should be included in any tax reform legislation. Natural gas not only constitutes a significant portion of the residential and industrial markets, but is also generally more economical, efficient and environmentally-clean in comparable applications of gas and electricity.

The only true valid way of measuring energy efficiency and developing programs and techniques to promote energy conservation is to measure all energy used from the point of extraction of the primary energy source and at all points through end-use. A Federal energy conservation program should promote the resource energy efficiency approach, since it would promote the most effective use of domestic natural resources and capital investment. This approach is superior not only in terms of determining energy efficiency, but in determining the needs of energy consumers and the environment.

One exception to the proposed tax benefits is to tax measures that increase primary energy use compared to alternatives available in the marketplace. Promotional practices should be evaluated in terms of the life-cycles of the appliances, short-term consumer costs, and total energy efficiencies.

Finally, A.G.A. supports the Alternative Fuels Incentive Act of 1991 for purposes of promoting the use of vehicles that would run on clean-burning fuels.

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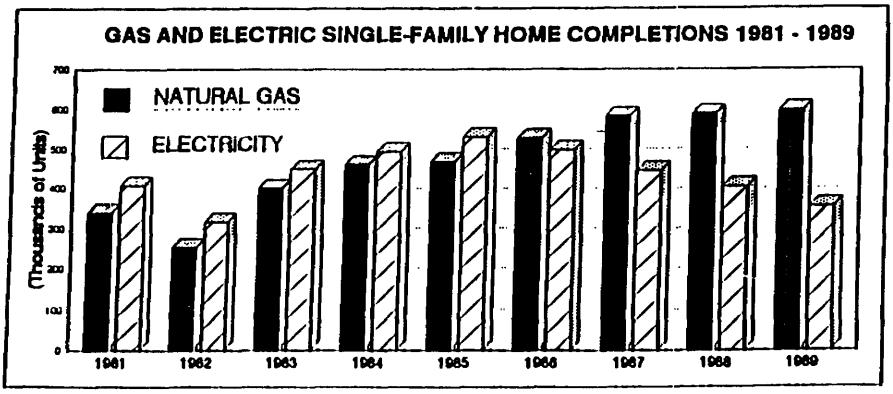
[17] Ruderman, Levine and McMahan, Energy Efficiency Perspectives on Individual Behavior, ACEE (1987).

APPENDIX I



APPENDIX II

Cost Comparison for Natural Gas and Electric Water Heating

First Hour Rating (Gallons)	Estimated Annual Energy Cost in Dollars	
	Natural Gas	Electricity
41 to 47	163 - 181	419 - 513
48 to 55	153 - 181	423 - 555
56 to 64	153 - 200	423 - 526
65 to 74	151 - 213	423 - 587
75 to 86	132 - 228	423 - 587
87 to 99	166 - 196	423 - 472
100 to 114	192 - 204	437 - 520
115 to 131	* - *	472 - 513
Over 131	114 - 233	* - *

*No reported models in this range

Source: Consumers Directory of Certified Efficiency Rating, GAMA. October 1990.

APPENDIX III

Energy Trajectory Efficiencies[1]						
	Extraction	Processing	Transportation[2]	Conversion[3]	Distribution	Cumulative Efficiency
Natural Gas	96.8%	97.6%	97.3%	-	99.2%	91%
Fuel Oil	96.8%	90.2%	98.4%	-	99.8%	86%
Electricity						
Coal Based	99.4%	90.0%	97.5%	33.4%	92.0%	27%
Oil Based	96.8%	90.2%	98.4%	32.5%	92.0%	26%
Natural Gas Based	96.8%	97.6%	97.3%	31.8%	92.0%	27%
Fossil Fuel Weighted Average[4]	-	-	-	33.1%	-	27%

Note: [1]Efficiency refers to the energy used or lost at various points along the trajectory, from the point of extraction to the point of end use.
[2]Transportation of natural gas from processing plant to local distribution system; transportation of heating oil from refinery to distribution center; transportation of fossil fuel to electricity generating plant.
[3]Existing generating facilities.
[4]Current fossil fuel electricity generating mix.

Source: "A Comparison of Carbon Dioxide Emissions Attributable to New Natural Gas and All-Electric Homes," Arlington, VA, American Gas Association, October 1990.

Summary Comparison of the Energy Efficiency of Residential Space Heating Trajectories
(Output Energy as a Percentage of Input Energy)

		End-Use Efficiency		
	Cumulative Efficiency	Minimum Allowable[2]	Maximum Available[3]	Total Efficiency
Natural Gas	91%	78%	96%	71-88%
Fuel Oil	86%	78%	91%	67-78%
Elec. Heat Pump	27%[1]	200%	270%	53-72%
Elec. Resistance	27%[1]	-[4]	99%	27%

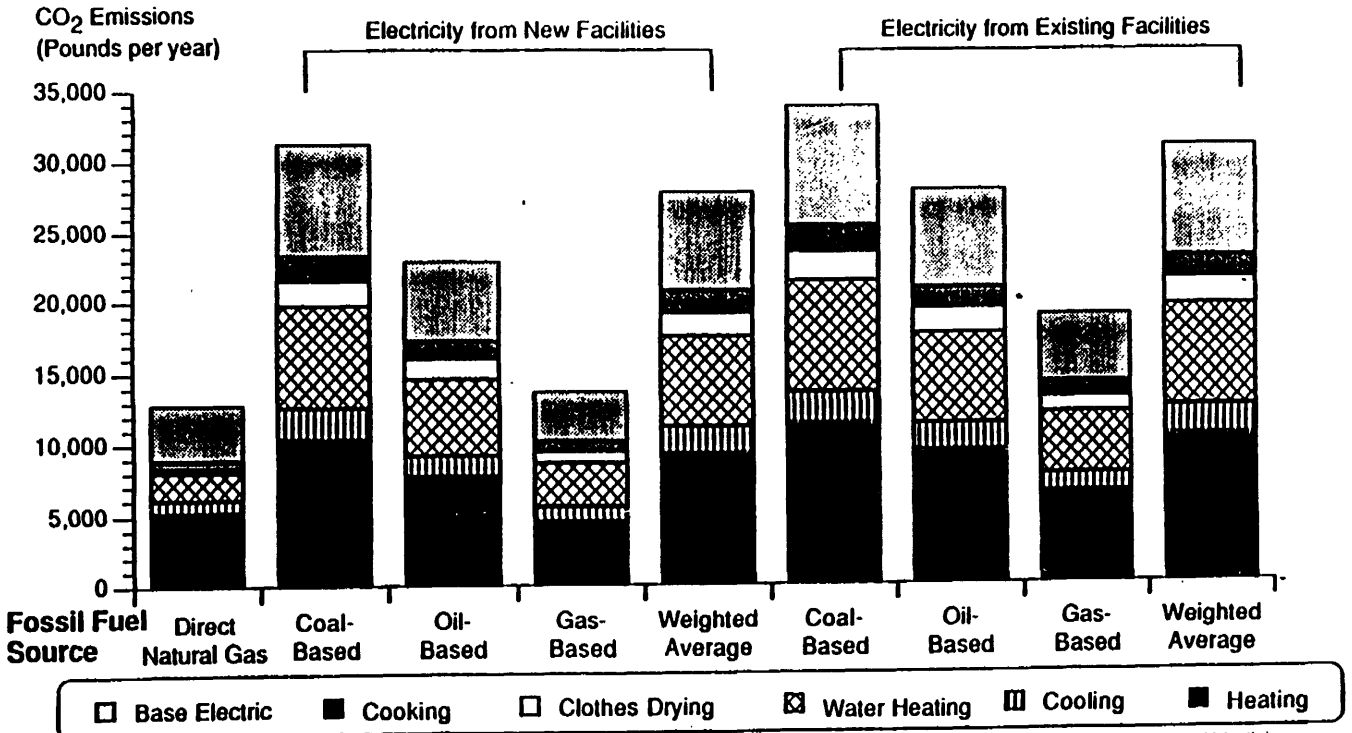
[1] *Weighted average of current fossil fuel electricity generating mix for generating facilities.*
[2] *National Appliance Energy Conservation Act of 1987 standards, which take effect on January 1, 1992.*
[3] *From The Most Energy-Efficient Appliances--1989-1990, American Council for an Energy Efficient Economy, Washington, DC, 1989.*
[4] *No minimum standards.*

Comparison of Air Pollution Emissions of Standard Fossil Fuels

Air Pollutants	Pounds of Uncontrolled Emissions per Billion Btu		
	Gas	Oil	Coal
Sulfur Dioxide (SO_2)	1	3,220	5,700
Nitrogen Oxides (NO_x)	230	390	900
Small Particles	10	230	2,540
Carbon Monoxide (CO)	20	30	30
Hydrocarbons	3	10	5
Carbon Dioxide (CO_2)	115,000	170,000	202,000

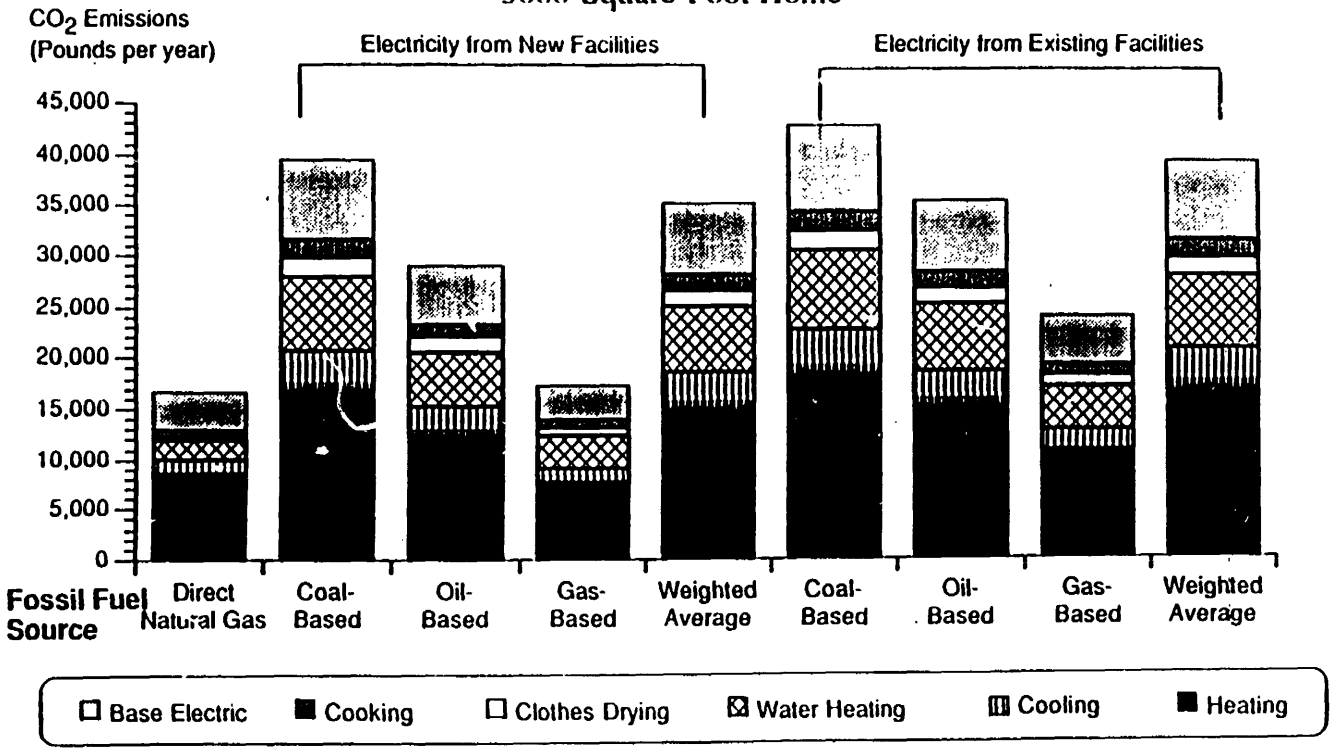
Source: Environmental Protection Agency

Annual Emissions of Carbon Dioxide Attributable to New Gas and All-Electric Homes
1500-Square-Foot Home



Notes: Includes consideration of total fossil fuel usage from point of energy production through end use. Homes are newly constructed, well-insulated and equipped with high-efficiency appliances. Assumes natural gas-based electricity generation provides natural gas homes with cooling and basic electric needs (lighting, etc). Heating and cooling requirements based on moderate temperature region (St. Louis). "Weighted Average" is weighted by current mix of coal, gas and oil-based generating capacity.

Annual Emissions of Carbon Dioxide Attributable to New Gas and All-Electric Homes
3000-Square-Foot Home



Notes: Includes consideration of total fossil fuel usage from point of energy production through end use. Homes are newly constructed, well-insulated and equipped with high efficiency appliances. Assumes natural gas-based electricity generation provides natural gas homes with cooling and basic electric needs (lighting, etc). Heating and cooling requirements based on moderate temperature region (St. Louis). "Weighted Average" is weighted by current mix of coal, gas and oil based generating capacity.

PREPARED STATEMENT OF MICHAEL J. GRAETZ

Mr. Chairman and Members of the Committee: It is a pleasure to be here this afternoon to address various tax proposals relating to energy conservation, the development of renewable energy source technology, and the Nation's dependence on foreign oil.

As you know, Mr. Chairman, a few months ago the President presented the National Energy Strategy to Congress. This comprehensive report presented the findings of an extensive Administration study of various policy options designed to increase energy security, to increase the availability of electricity and transportation fuels produced from renewable sources, and to improve energy conservation. The National Energy Strategy resulted from 18 months of study, hearings and analysis under the leadership of Secretary of Energy James D. Watkins. The Department of Energy is also here today and will address the broader aspects of the President's National Energy Strategy. My comments will be limited to the Committee's request for the Administration's position on specific tax proposals.

In the course of the development of the National Energy Strategy, literally hundreds of alternative policies were examined—including many tax proposals similar to those before the Committee today. The Administration evaluated each proposal taking into account the important energy objectives and the need to maintain a healthy economy and to adhere to the 1990 Budget Act. Relatively few tax proposals were included in the National Energy Strategy. In particular, only two options in the Strategy—a 1-year extension of the renewable energy tax credit and the permanent extension of the research and experimentation tax credit—call for a statutory change in the tax laws. Two other tax policy options—a clarification of the current-law treatment of certain utility rebates and an expansion of the allowable nontaxable limitation for transit passes—are being implemented through administrative action.

The limited number of tax policy aspects of the National Energy Strategy should not be surprising. The Administration believes that the tax laws should continue generally to provide neutral treatment of investments and to maintain the lowest possible tax rates. We have also become concerned about the frequency and scope of changes in the tax law. While the decades of the 1950s, 1960s and 1970s experienced at most two or three major tax bills, there were nine major tax bills in the 1980s and one in the first year of the 1990s. Constant revision of the tax law makes compliance more burdensome and costly for the populace and tax enforcement more difficult for the IRS. These are genuine economic costs. The Administration prefers to rely on market prices, rather than the tax laws, to promote changes in the types of energy supplied by producers or demanded by customers.

The Administration believes that the mix of measures advanced in the National Energy Strategy, together with the Clean Air Act Amendments of 1990 and other significant legislation already passed by the Congress, will promote the objectives sought with minimum interference with energy markets and maximum adherence to our budgetary objectives.

In the remainder of my testimony, I will provide more detailed comments on provisions listed by the Committee in the hearing announcement. For convenience, I have grouped together portions of a number of different bills under their common objectives. I shall discuss each of these groupings, rather than focus sequentially on each of the bills.

I. ENCOURAGE DEVELOPMENT OF RENEWABLE ENERGY SOURCES

Proposals to provide incentives for electricity production from renewable sources generally fall into two categories: extension or modification of current-law investment tax credits for solar and geothermal property, and new tax credits for the production of electricity from renewable sources. The intent of these proposals is to accelerate the development of such renewable energy sources.

Energy Tax Credit

Current law provides a 10-percent tax credit for investment in solar or geothermal energy property. Solar property is equipment that uses solar energy to generate electricity or steam or to provide heating, cooling, or hot water in a structure. Geothermal property consists of equipment, such as a turbine or generator, that converts the internal heat of the earth into electrical or other useful forms of energy. This credit is currently scheduled to expire on December 31, 1991. The Administration has proposed extending the energy tax credit for one additional year.

S. 731 provides a 1-year extension of the energy tax credit, as favored by the Administration. In contrast, S. 141, S. 466, S. 661, S. 741 and S. 743 call for a 5-year

extension (to December 31, 1996). S. 1157 would allow the credit to be used against a corporate taxpayer's alternative minimum tax liability.

Administration position. The Administration at this time does not support more than a 1-year extension of the energy credit. While we recognize that a more prolonged period of benefits might provide more certainty and thus a greater incentive, we are not convinced that the incremental speed-up in the development of renewable energy technology that would result from extending the energy credit for four additional years justifies the $200 million in additional revenue losses that such an extension would cost. The Administration also opposes the proposal to create a special exception by allowing the energy tax credit to offset corporate alternative minimum tax liability.

Production Credit

Current law does not contain any production incentives for electricity produced from renewable energy sources. S. 466, S. 661, S. 741, and S. 743 contain proposals for production tax credits. These bills would provide a tax credit of up to 2 cents per kilowatt hour (adjusted for inflation) for the production of electricity generated from a renewable energy source. Renewable energy sources would include new facilities that generate electricity from wind, solar thermal, photovoltaic, and certain geothermal and biomass sources. The credit rate for electricity produced from geothermal sources would be one-half of the regular rate. The proposed legislation would grant the Secretary of the Treasury authority to expand the list of eligible sources. The credit rate for production from a facility placed in service after 1996 would be less than the rate for a facility placed in service between 1991 and 1996, and the program would be entirely phased out for property placed in service after 2001, although credits would be allowed for electricity sold before 2009.

Administration position. The Administration opposes these proposals for a number of reasons. First, because only about 5 percent of the nation's electricity is generated from fuel oil, this proposal will not significantly reduce the level of our oil imports; it is more likely to reduce the future use of coal-fired plants. While this may produce environmental benefits, the cost of the proposed program may be quite high. While we do not have precise estimates of the proposals in these bills, related proposals that we have examined would produce a revenue loss in the range of $500 million to $2.0 billion over the 5-year budget period. Variations in the estimates are associated both with the amount of the credit and the extent that it may be available for projects using existing mature technology. The revenue loss of such proposals per barrel of oil saved would be very high—in the range of $10 to $30 per barrel. Utilities may use current mature technology and still qualify for the credits.

The accelerated development of renewable energy technology can produce benefits to the nation. However, the National Energy Strategy concludes that growth in renewable energy supplies can be accelerated over the coming decades without resorting to permanent subsidies or legislative mandates. Rather, the National Energy Strategy proposes intensified investment in research and development to reduce the costs and enhance the competitiveness of renewable energy options. Investment in R&D to improve energy technology and reduce costs is a more appropriate role for the Federal Government than using taxes or regulations to subsidize or mandate the use of particular technologies.

II. IMPROVEMENTS IN TRANSPORTATION

Proposals to reduce the use of conventional motor fuels take several forms: (1) tax subsidies to encourage the purchase of vehicles that can operate on alternative fuels, (2) taxes and tax subsidies that encourage the purchase of fuel-efficient vehicles, (3) expansion of tax benefits for employer-provided transit passes and the use of commuter vehicles, or (4) reduction of tax benefits for employer-provided parking.

Increased Use of Alternative Fuels

Under current law, no special tax subsidy is provided for vehicles that use alternative fuels or for delivery systems for alternative fuels. Some proponents of such subsidies contend that consumers will refrain from purchasing motor vehicles that can run on alcohol fuels (such as methanol or ethanol) or other clean-burning fuels because of an inadequate number of service stations from which such fuels can be purchased, and that service station owners are reluctant to install the necessary equipment because of the low demand for such fuels.

S. 1178 would provide tax benefits designed to encourage both the purchase of clean-burning vehicles and the installation of the required infrastructure. In particular, S. 1178 would allow expensing of a limited portion of the purchase price: up to $2,000 for each passenger car or light truck, $5,000 for each medium truck, and

$50,000 for each heavy truck or bus. Up to $75,000 of the cost of refueling equipment could also be expensed, although this limitation would be an overall cap per location, rather than a per-pump or annual limitation. In addition, S. 1178 would require the Federal Government to pay state and local governments a portion of their costs of cleanburning vehicles and refueling equipment.

Administration position. The Administration opposes the use of additional tax incentives to encourage the use of alternative fuels. The tax laws currently provide substantial subsidies to alcohol fuels. An income tax credit (or an equivalent excise tax reduction) of 54 cents per gallon of alcohol is allowed to producers and blenders of alcohol fuels. An additional alcohol fuels credit of 10 cents per gallon is available to small producers (those with an annual production capacity of less than 30 million barrels). In addition, the Clean Air Act Amendments of 1990 and various state programs are expected to accelerate significantly the use of alcohol and other cleanburning fuels in areas of low air quality. These provisions, together with the actions suggested in the National Energy Strategy—including greater federal purchases of alternative fuel vehicles and enhanced R&D of new feedstocks and conversion technologies—are expected to result in a substantial increase in the use of alternative-fueled vehicles.

Encourage Purchase of Fuel-Efficient Vehicles

The current tax law imposes a so-called "gas guzzler tax"—an excise tax on the manufacturer or importer of vehicles that have a fuel economy of less than 22.5 miles per gallon. This tax ranges from $1,000 (for a vehicle with fuel economy between 21.5 and 22.5 miles per gallon) to $7,700 (for a vehicle with fuel economy less than 12.5 miles per gallon). S. 201 would increase the fuel economy standard below which the tax applies by one mile per gallon for each model year from 1992 to 2000. In addition, the bill would increase the amount of the tax between 1992 and 2000 and would adjust the tax for inflation. It also would provide a limited investment tax credit for the purchase of fuel-efficient vehicles; the credit would increase by reference to the percentage by which the fuel economy of the vehicle exceeds the average for the model type. S. 741 and S. 743 would retain the gas-guzzler tax and in addition establish a system of taxes and rebates to encourage the purchase of safer and more fuel-efficient vehicles. A tax-exempt rebate would be allowed to a purchaser of any vehicle more fuel efficient than the average for its class, and a tax would be imposed on the purchase of any vehicle less efficient than the average for its class. A similar system would operate with respect to the vehicle's safety rating.

Administration position. The Administration opposes an increase in the gas guzzler tax at this time. This tax was doubled and the motor fuels tax was increased in the Omnibus Budget Reconciliation Act of 1990. It is too soon to know the effects of these increases on fuel efficiency. That same Act also imposed a luxury excise tax on automobiles costing more than $30,000. Sales of many of the less fuel-efficient cars are also subject to this tax. A further increase in the gas-guzzler tax at this time does not seem appropriate. The Administration also opposes the new tax and rebate systems of S. 741 and S. 743. We do not believe any new federal excise tax on the purchase of motor vehicles is appropriate even if that tax is dependent upon the vehicle's relative fuel economy and safety rating and its proceeds are to be rebated to purchasers of more fuel-efficient or safer vehicles.

The impact of such a tax on auto manufacturers will be uneven in the near term, depending principally on the fuel economy and safety characteristics of their existing product mix. Moreover, the application of the proposed tax and rebate system for relative fuel economy to model classes could lead to puzzling results. For example, the purchaser of a car with fuel economy of 35 miles per gallon in a model class with average economy of 40 miles per gallon would be subject to a tax of $357.[1] On the other hand, the purchaser of a car with fuel economy of 30 miles per gallon in a model class with average fuel economy of 25 miles per gallon would obtain a $667 rebate.[2] Thus, the purchaser of the latter car with a fuel economy of 30 miles per

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[1] Under S. 741 and S. 743, the tax is calculated as $10 times the difference between the vehicle's annual fuel consumption and the sales-weighted annual fuel consumption for all vehicles in its class, where for this purpose annual fuel consumption is equal to 10,000 divided by the vehicle's miles-per-gallon rating. Thus, for the example noted, the tax is $10 x (10,000/35—10, 000/40) = $357.

[2] Under S. 741 and S. 743, the rebate is calculated as $10 times the difference between the sales-weighted average fuel consumption for the vehicle's class and the vehicle's fuel consumption. Thus, for the example noted, the rebate is $10 x (10,000/25—10,000/30) = $667.

gallon would enjoy a $1,024 advantage over the purchaser of the former car with a fuel economy of 35 miles per gallon. Similar results would arise from the proposed application of the tax and rebate system for relative auto safety to model classes.

Increase Reliance on Mass Transit

Under current law, the Internal Revenue Code explicitly excludes the value of employer-provided parking at or near the employer's business premises from an employee's gross income as a working condition fringe benefit. Employer reimbursements of an employee's parking expenses are similarly excluded, but only if the payment is a reimbursement of parking expenses actually incurred. Thus, a general transportation allowance paid to an employee whether or not the employee has parking expenses is not excluded under this rule.

The tax code also excludes *de minimis* fringe benefits of such small value that accounting for them would be unreasonable or administratively impracticable. Pursuant to the legislative history of this rule, regulations allow an employer to provide a tax-free subsidy to employees that commute by public transportation. If the subsidy is provided in the form of discounts on transit passes, tokens, fare cards or similar instruments and does not exceed $15 in any month, the subsidy is excluded from the employee's income; if the value of the subsidy exceeds $15 per month, the benefit no longer qualifies as *de minimis* and the entire value of the subsidy must be included in the employee's taxable income. Some contend that this disparity in treatment encourages the use of private transportation over the use of mass transit facilities.

In addition to other measures to encourage increased use of carpools and mass transit, the National Energy Strategy indicated that the limitation on the value of tax-exempt transit passes would be increased. The Internal Revenue Service has recently proposed regulations that would increase this limitation to $21 per month, effective July 1, 1991, to reflect the inflation experienced since this exclusion was adopted in 1984. A number of bills have been introduced that would increase the tax-exemption limitation on the value of the transit passes to much higher levels and would allow the tax-exempt level of benefits for all employees even if the employer-provided amount exceeds the threshold. Thus, under S. 129, up to $30 per month of an employee's mass transit commuting expenses would be treated as an excludable fringe benefit; this amount would be raised to $60 per month under S. 26, and $75 per month under S. 741 and S. 743.

From 1979 through 1986, the value of commuting in employer-provided vans, buses, or similar highway vehicles was excluded by statute from an employee's gross income if provided under a nondiscriminatory plan of the employer. Several bills (S. 26, S. 129, S. 741, and S. 743) would provide an exclusion from the employee's gross income of the value of commuting in employer-provided commuting vehicles, which are vehicles that satisfy statutory requirements similar to those in effect during 1979–1986. S. 26 and S. 129 would not limit the amount of such exclusion; S. 741 and S. 743 would limit the exclusion to $75 per month.

Administration position. Although the Administration supports improvement and increased use of mass transit facilities, it opposes these major expansions in the amount of employer-provided commuting costs that may be excluded from income. The proposed expansion in tax benefits would be an inefficient means for encouraging safety or modernization of public transportation facilities.

Other proposals seek to discourage the use of private transportation by limiting or eliminating the current-law exclusion from income of the value of employer-provided parking. Thus, under S. 326, an employer would be denied a deduction for expenses of furnishing parking to an employee unless the employee may elect to receive cash or a transportation subsidy in an amount equal to the value of the parking subsidy. S. 26, S. 129, S. 741, and S. 743 would treat parking as a working condition fringe benefit only for an on-site, employer-operated parking facility used primarily by the taxpayer's employees.

Administration position. The Administration opposes these measures. The exclusion of parking expenses was a part of a comprehensive reexamination of the treatment of fringe benefits during the 1980s, and notwithstanding the potential advantages in the current-law treatment of employer-provided transportation assistance in favor of private passenger car transportation over public transportation, we do not favor reopening this debate. When it previously addressed this question, Congress carefully balanced two conflicting objectives: the need for clear and administrable rules and the need to limit the erosion of the income and social security tax bases due to the increased importance of noncash fringe benefits. Treasury recognizes that the current favorable treatment of employer-provided parking is not fully consistent with the general rules limiting tax-exempt fringe benefits. However,

making employer-provided parking taxable would produce serious administrative difficulty, because the valuation of employer-provided parking benefits can be extremely difficult.

S. 741 and S. 743 attempt to avoid the valuation difficulty by requiring that only the value of rented parking facilities, presumably the rent paid, be included in the employee's income. The avoidance of the valuation difficulty, however, produces inequities by excluding from taxation benefits provided by employers able to offer their own parking facilities while taxing employees for similar benefits provided by employers not able to provide parking on their own facilities. S. 326 takes a different approach to the issue by denying employers deductions for certain employer-provided parking, a violation of the general norm that employers should be entitled to deduct all expenses of compensation. In addition, this approach also produces administrative difficulties and inequities, for example, by requiring allocations of depreciation or rent deductions between parking and other building facilities and by having no impact on employers who provide parking in nondeductible or fully depreciated facilities.

Moreover, adequate local public transportation facilities do not exist in all cities. In many areas of the country, taxation of the value of employer-provided parking therefore might have at most a very modest effect on the use of private transportation. The effect may also be modest in cities where public transportation is available if employees strongly value the reduced transit time and greater flexibility possible with private transportation.

III. INCREASE ENERGY CONSERVATION

Two types of tax proposals have been suggested in an effort to encourage energy conservation: the exclusion from income of certain utility rebates and a tax credit for the cost of retrofitting older home furnaces with more fuel-efficient oil burners.

Utility Rebates

A number of utilities offer rebates to customers acquiring certain conservation equipment. Under current law, these rebates may be included in the taxable income of the customer receiving the rebate. The National Energy Strategy calls for the Administration to clarify the nontaxability of rebates provided by utilities in the form of reduced service charges, and the Internal Revenue Service has recently released guidance on this issue in the form of a revenue ruling. This ruling makes it clear that rebates provided by electric utilities to customers as a reduction in the cost of the electricity they provide may be excluded from the income of the customers. However, a cash payment remains fully taxable.

A number of bills (S. 83, S. 326, S. 679, S. 741, S. 743, and S. 922) would provide an exclusion from gross income for subsidies that a utility provides to a customer for the purchase or installation of conservation measures. Each bill also provides that no deduction or credit would be allowed for the expenditure of amounts provided or reimbursed by an excluded subsidy and that the adjusted basis of property would be reduced by the amount of any excluded subsidy for the property.

The bills differ in the scope of the exclusions provided. In general, they apply to subsidies provided by electric or gas utilities for residential or business energy conservation measures. S. 679 and S. 922 are more limited, however; S. 679 applies only to residential energy conservation measures and S. 922 applies only to subsidies provided by electric utilities. On the other hand, S. 83, S. 741, and S. 743, which apply to both energy and water conservation measures are broader than the other bills. Finally, S. 83 and S. 326 apply to payments to qualified cogeneration facilities or qualifying small power production facilities; the other bills except those payments either specifically or by limiting the exclusion to residential energy conservation expenditures.

Administration position. The Administration opposes these proposals. Each proposal deviates from existing tax policy by creating a new category of tax-exempt income, and no doubt would lead to demands by other groups to make other types of income tax-exempt. It would be difficult to police the proposals' prohibitions of double benefits by denying business customers deductions or depreciation for the expenditures financed by the rebate. Moreover, under the recently promulgated revenue ruling, objectives similar to those of these bills can be accomplished through programs that allow discounts on monthly utility bills to customers who participate in conservation programs without departing from general tax principles or opening up the potential for double tax benefits. Finally, the proposed legislative changes would lose significant revenue over the 5-year budget period.

Tax Credit For Retrofitting Home Oil Burners

From 1978 through 1985, the Internal Revenue Code provided a residential energy credit to individuals installing insulation or other energy-saving components in their principal residence. The credit allowed was equal to 15 percent of the first $2,000 of qualifying energy conservation expenditures (a taxpayer's maximum credit per residence was $300) and the credit was nonrefundable.

Several bills (S. 326, S. 741, and S. 743) would provide a nonrefundable credit to individuals for retrofitting residential oil-burning furnaces with flame-retention replacement burners or similar components that use comparable conservation technologies. S. 741 and S. 743 would also allow the credit for expenditures that increase a residence's insulation value (including expenditures that increase the insulation value of a water heater or a window) and expenditures for an automatic thermostat control. The credits would be allowed only for the installation of new equipment with an expected useful life of at least three years.

In general, the credits would be allowed' for the full amount of qualifying retrofit expenditures up to a lifetime maximum of $100; joint occupants of a residence would be required to allocate the $100 maximum credit in proportion to their qualifying retrofit expenditures. No credit would be allowed for expenditures made from subsidized (whether in the form of a grant or a low-interest loan) financing provided by a governmental energy conservation program, and expenditures for which a credit is allowed could not be taken into account in determining the basis of the property with respect to which the expenditures are made. The credit would be allowed for expenditures made after December 31, 1990. Under S. 326, the credit would be allowed only for expenditures made before December 31, 1994; S. 741 and S. 743 would also allow a credit for expenditures during 1995.

Administration position. The Administration opposes these proposals because these are inefficient mechanisms for encouraging conservation. Experience with the prior-law residential energy credit, which also provided a modest tax credit for certain residential conservation expenditures, suggests that most taxpayers claiming the credit would have purchased the conservation equipment even in the absence of the credit. These proposals also would complicate the tax forms for all Americans and would be difficult for the IRS to administer.

Mr. Chairman, that concludes my formal statement. I will be pleased to answer questions that you and the Members of the Committee may wish to ask.

PREPARED STATEMENT OF KENNETH C. KARAS

Thank you, Chairman Daschle, and Members of the Subcommittee. My name is Ken Karas, President and Chief Executive Officer of Zond Systems, Incorporated. Zond was incorporated in 1980 and is one of the largest wind generating companies in the United States. Zond currently operates 2,500 turbines representing about 200 Megawatts of capacity and is completing a new 340 turbine, 77 Megawatt project. This year Zond will generate about 450 million kilowatt hours, and over 600 million in 1992 with the completion of our latest project, sufficient to provide the residential requirements for about 300,000 people.

I appreciate the opportunity to address this subcommittee regarding an issue of great importance in the renewable energy field—creating more equitable tax treatment of renewable electricity generating projects, and particularly wind.

Commercial generation of electricity from the wind is barely a decade old. Since 1981, more than 15,000 turbines with a combined capacity of 1,600 megawatts have been installed in California alone, generating over 2.5 billion kilowatt-hours in 1990, enough to provide for the residential needs of a city of almost one million people. About fifty percent of this capacity has been installed since 1985.

We are proud of the advances that we have made as an industry in the past decade. Nonetheless, a recent study by the Department of Energy placed the U.S. wind energy potential at more than 100 quads per year, more than the country's annual energy requirements. Despite that huge potential, we contribute only a fraction of one percent of the nation's total electricity needs. Clearly, we are ready to play a much more significant role in the nation's energy supply mix. But this can only be done with more equitable tax treatment, which can only be accomplished with this committee's support.

With the recent conclusion of hostilities in the Middle East, the American people, once again, have focused on energy security and energy independence. The Grassley-Daschle legislation (S. 466), as well as other production incentive bills, accomplish three very important national goals. First, they reduce our nation's reliance on foreign petroleum and foreign natural gas; second, they encourage options and

alternatives to meet the nation's fuel requirements with environmentally safe energy resources (25 billion pounds of carbon dioxide emissions were offset by wind energy in California last year alone); ad finally, they support U.S. industry's production of equipment and skills in wind and other renewable electric generation, power control and transmission.

It is apparent that the nation is concerned with the environment and particularly clean air, as evidenced by recent adoption of the Clean Air Ad "Global Warming" is no longer viewed as a theory espoused by the scientific community, but as an actual phenomenon, even though the exact degree and timing of worldwide impacts is still debated. Technologically proven wind power generation can substantially contribute to the United States' clean air goals and its obligations to help the rest of the world address global warming concerns. Every 1 percent of U.S. electrical power generating capacity provided by wind facilities will provide the following annual clean air and global warming benefits.

- SO_4 ..... 25,000 tons
- NO_x ..... 16,000 tons
- CO_2 ..... 4,000 tons
- Particulates.... 4,000 tons
- CO_2 ..... 8,300,000 tons

It is the wind industry's goal to provide 20 percent of U.S. electrical power generating capacity by 2020.

Like all new technologies, the wind industry experienced various technical problems in its early stages. In the early 1 980s, turbines were available for operation about 60 percent of the time, and wind-generated electricity costs were as high as 25 to 30 cents per kilowatt-hour. Turbines installed since 1985 experience outages of less than five percent (similar to conventional energy plants), and costs have declined to between six and nine cents per kilowatt-hour.

Yet, unlike virtually every form of electricity generation, and despite its important social and environmental benefits, wind energy receives almost no federal to support—no depletion allowance, no investment to credits, no fuel expending, no artificial liability limits. That is why we are encouraged by the introduction of S. 466 and other pieces of legislation that seek to recognize the benefits of renewable energy technologies such as wind energy.

Given the tremendous advances made in renewable technologies, given the strong public support for energy sources such as wind, geothermal and solar, and given the almost unlimited potential these energy sources can offer to this country's electricity supply, we believe that now is the time for the Congress to send a message of support One of the strongest messages of support would be passage of tax equity legislation.

The American Wind Energy Association strongly supports Introduction and passage of comprehensive to legislation for solar, wind and geothermal energy. Given the different characteristics of each of the renewable energy technologies, we believe that to legislation should include the current option of an investment to credit to encourage continued Investment In renewable technologies that are not yet commercially competitive, while offering as an option a production tax credit similar to S. 466. Such a two-tiered option would address the unique characteristics of each energy technology, while providing the greatest benefit to the American taxpayer.

Several renewable technologies which are close but not yet cost competitive with fossil fuel fired power generating technologies today, are nevertheless sufficiently technologically effective to be able to make use of a production incentive. These include wind, geothermal and biomass. There are other technologies, however, that are further from cost-competitiveness (such as photovoltaics and small wind turbines under 50 kilowatts), are more capital intensive (solar thermal), or simply are inappropriate for a per-kilowatt-hour production incentive (solar hot water systems). These technologies would continue to be better served by a capital-based investment credit.

It's important to remember that the Department of Energy itself supported a renewable energy production incentive in its draft version of the President's national energy strategy. Unfortunately, the White House elected to override the DOE and remove these provisions prior to the energy strategy's release in February. DOE summarized the benefits of the production incentives most effectively itself, noting that "the production incentive was identified as the preferred instrument to maximize energy impact while minimizing exposure to the Treasury. The most desirable feature is that the incentive is tied directly to the desired result, namely renewable

energy production. Thus, the incentive provides support to a developing industry and at the same time rewards advances in technology."

Electrical power generating capacity in the United States will increasingly be acquired by utilities through competitive bidding, pitting the wind industry against various other technologies, including other renewables and fossil-fired generation. To the extent these other technologies are either directly (e.g. through capital or production-based tax credits) or indirectly, (e.g. through depletion allowances indirectly benefitting fossil-fuel fired plants) benefitted by Federal tax incentives and wind is not (the current situation), wind will be unfairly disadvantaged.

Like other sources of renewable energy, wind energy received an investment tax credit through the early 1980s. However, wind energy's tax credit expired at the end of 1985 and the investment tax credit was terminated with passage of the Tax Reform Act of 1986 (with a "grandfather" provision which allowed some wind projects to use the investment tax credit until the end of 1990). The industry nonetheless has continued to advance technologically, increasing efficiency and capacity while reducing generating costs.

Industry analyst Robert Lynette expects wind energy's costs to decline another 40 to 60 percent through the next decade. The nation's largest investor-owned utility, Pacific Gas & Electric, agrees, saying that wind generated electricity would become its "most economic new base load source by the year 2002 under the expected fuel cost scenario, and by 1992 under the high fuel cost scenario."

Wind energy technology is sufficiently mature so that it can make a substantial and environmentally-benign contribution to the nation's power generating needs, but it needs comparable treatment with other renewable and conventional energy technologies. More than any other single action of the Congress, including wind in a package of renewable energy incentives would send a clear message to the capital markets that would speed investment in the American wind industry. And given the multi billion-dollar potential of the global wind industry, the American industry needs the support of the U.S. government to maintain its international competitiveness.

As this country is periodically reminded, an uninterrupted supply of cheap energy is not a constitutionally-guaranteed right. Renewable energy technologies such as wind can and should continue to play an ever-increasing role in our nation's energy supply mix, but this Congress must recognize the tax biases that exist against renewable technologies, and must correct these biases, to allow clean energy sources to grow according to their full potential.

For wind, geothermal and biomass, renewable energy technologies that have greater near-term competitiveness for the bulk power markets, a production tax incentive would send the proper message of support to the U.S. energy and investment communities, as would retaining the solar business energy credit. Levelizing the tax advantages held by conventional forms of energy with a production-based incentive for renewable technologies would help attract capital to scale-up manufacturing while at the same time insulating the U.S. Treasury by ensuring that tax credits are received only by those actually generating electricity.

Senator Grassley, in his introduction of the Grassley-Daschle legislation, summarized the case for production incentives quite eloquently, stating that, "If we can provide a few billion dollars in tax incentives to the oil industry, as we did last year, which is flush with cash at this time, then we can be more forward looking and provide commensurate assistance to the energies of the future." And, as Chairman Daschle pointed out during S. 466's introduction, the President's national energy strategy "does little to reverse the course that we have followed for the last decade toward greater dependence on oil, and, in particular, foreign oil. The national energy strategy, at best, has modest conservation measures, and is seriously lacking in the area of renewable energy incentives."

The wind energy industry has advanced not because of, but in spite of, federal tax policy. We urge this subcommittee to continue in its quest for tax equity, and for a fairer, more reasonable, more proactive approach toward this nation's energy tax policy. For the Committee's edification, we have attached a copy of production incentive legislation that the American Wind Energy Association has drafted, as well as a comparison of this legislation with S. 466 and H.R. 780, similar legislation introduced in the House by Energy and Power Subcommittee Chairman, Phil Sharp of Indiana.

We believe that, with a few minor changes, S. 466 could represent the most significant change in federal renewable energy tax policy to come before this Committee, and we urge the Committee's continued diligence in moving forward.

Again, we thank this subcommittee for its interest and urge your support and leadership for renewable energy tax equity.

Attachment.

Explanation and Comparison of AWEA Tax Incentive Proposal With S. 466 the Grassley-Daschle Bill and H.R. 780 the Sharp Bill

I. Level of Tax Incentive.

A. **Comparison of Proposals.** AWEA proposes a 2.5 cent per kilowatt hour tax credit for electricity produced from wind energy. The credit is phased out if the average contract price of electricity paid to qualified generators in the state exceeds the bench mark of 8 cents per kilowatt hour (kwh). For each cent above the 8 cent bench mark, the credit will be reduced by .5 cent, totally phasing out when the price reaches 13 cents per kilowatt hour.

In contrast, the Grassley-Daschle bill, which contains the original Department of Energy proposal, offers a 2 cent kwh credit for facilities placed in service in the first 5 years and a progressively lower credit for facilities place in service over the following 5 years:

2.0 cents in 1992-96	0.9 cents in 1999
1.6 cents in 1997	0.6 cents in 2000
1.2 cents in 1998	0.3 cents in 2001

It covers production from solar thermal, photovoltaic, wind, geothermal (other than dry steam geothermal), biomass, and any other technology identified by the Treasury and Energy Secretaries within one year of the date of enactment. Biomass is defined to exclude aquatic plants and waste residues from wood, animal, municipal, agricultural, or other sources. The credit would be cut in half for dry steam geothermal; this would apply to the Geysers deposits in California. Dry steam refers to a reservoir which (A) has no mobile liquid in its natural state, and (B) has steam quality of 95 percent water or more, and (C) has an enthalpy for the total produced fluid at least equal to 1,200 Btu's per pound.

The Grassley-Daschle bill also extends from 1991 through 1996 the present capital-based, solar and geothermal energy credit under section 48(a)(2)(B) of the tax code. Thus, new facilities build at the Geysers during this extension period, would continue to qualify for the existing 10 percent geothermal tax credit. A geothermal or solar facility which qualifies for both this capital investment credit and the production credit would have to make an election. It could not double dip and get both.

Of the three production tax incentive proposals, the Sharp bill offers the highest with a 2.5 cent kwh credit. It applies only to solar, wind, and geothermal. Unlike the AWEA proposal and Grassley-Daschle bill, the Sharp bill does not adjust the level of the production incentive for inflation.

B. **Explanation and Rationale.** President Bush has submitted his National Energy Strategy to establish a secure, efficient, and environmentally sound energy future through supply diversification. In line with this national policy, AWEA proposes the production incentive for three reasons: (1) To reduce the nation's reliance on foreign petroleum and foreign natural gas. (2) To create options and alternatives to meet the nation's fuel requirements, particularly with environmentally safe energy resources. (3) To support U.S. exports of equipment and skills in wind electric generation as well as in power control and transmission.

Investments in wind generation equipment require long-term, financing. The production credit is needed as a price support to lessen the risk for investors from fluctuating power rates. The AWEA proposal (in contrast to the Grassley-Daschle and Sharp bills) reduces the credit as the market price of energy increases above 8 cents per kilowatt hour. When market prices for electricity reach 13 cents per kilowatt hour, the tax incentive is totally phased out.

Since the credit incentive serves as a price support and since the credit will be granted to a qualified facility for a 10 year period, an inflation adjustment is needed to maintain a consistent level of support.

II. Project Qualification Period and Duration Period of the Credit

A. Comparison of Proposals. The AWEA proposal seeks a qualification period which runs until 2012; it also seeks a 10 year credit duration period for facilities placed in service during the qualification period. Under the proposal, any facility placed in service after December 31, 1989 until January 1, 2012 would be qualified. A qualified facility would earn the production credit during the first 10 years of production. This 10 year credit duration period permits financing of the wind facility with 10 year notes. Since any facility placed in service over the next 20 years would qualify, the industry will have sufficient time to plan for rational expansion.

The Grassley-Daschle bill has a 10 year qualification period and a 7 year credit duration period. The credit applies to facilities placed in service after December 12, 1991 and before January 1, 2002. The bill intends to provide a qualified facility with the production tax credit for the first 7 years of operation. (However, the actual bill language does not implement this intention.) The credit level for a qualified facility's entire 7 years of eligible production is the amount specified for the year the facility is placed in service.

The Sharp bill in contrast has the shortest qualification period -- 6 years -- and a 10 year credit duration period. A qualified facility must be placed in service within 6 years of the enactment date and the credit will apply for 10 years of production from that facility. Assuming that this bill is enacted in 1991, a facility to be eligible for the credit must be placed in service by 1997 at the latest. However, the provisions in the bill "shall apply to electricity generated more than 1 year after the date of the enactment of this Act." This effective date provision is confusing. It may mean that the credit does not become effective until one year after the enactment date. Such a delay in the effective date will cause developers to postpone completion of current projects so as to qualify for the credit. The delayed effective date is bad tax and industrial policy.

B. Explanation and Rationale. The 6 year qualification period in the Sharp bill and the 10 year qualification period in the Grassley-Daschle bill are too short to plan and construct major wind generation facilities. It took the wind industry 3 years to respond to the 1978 Energy Tax Act. The initial wind facilities were placed in operation in 1981; significant facilities did not come on line until 1982 and 1983. The energy credit under the 1978 act would have expired in 1983, but the 1981 Crude Oil Equalization Tax Act extended the credit for 3 more years until 1986 to allow additional time for projects to be completed.

AWEA proposes a qualification period that runs until 2012. This would provide adequate time to negotiate power purchase agreements with electric users; conduct the required two year meteorological testing prior to construction; complete necessary environmental impact statements, conclude land acquisition agreements; obtain necessary licenses and PUC approval; develop access roads, build substations and transmission facilities; and acquire, erect, test, and synchronize the wind generation facility. Wind farms, like other electric generation facilities, are major projects.

As an alternative to the 20 year qualification period, AWEA would propose a 10 year period with an affirmative commitment transition rule; the transition rule would be identical to the investment tax credit transition rules in 1986. Under such rules, projects already in the works would still receive the credit even if placed in service after the qualification date. For example if the credit qualification period ended on January 1, 2001, an affirmative commitment transition rule would provide that any project with significant commitment by December 31, 2000 would still qualify for the credit even if placed in service afterward. A legally binding power sale contract or a legally binding construction contract would be a significant commitment to qualify a facility, for in these cases the developer has already incurred substantial liability to complete the project.

III. Sale Among Affiliated Group Members.

A. Comparison of Proposals. Following existing section 29 of the tax code, the AWEA proposal allows the production credit to apply to sale of electricity between affiliated group members. The Grassley-Daschle bill has an identical provision to permit sale among affiliates. But the Sharp bill would deny the credit for electricity sold to an affiliate.

B. Explanation and Rationale. Sale of power to affiliate entities is important for two reasons. First, financing requirements and proposed PURPA amendments require one affiliate to own and operate the facility and another affiliate to market the power from this and other facilities. Second, utility holding companies want a separate subsidiary to take an ownership interest in a qualified facility to avoid subjecting the other affiliates to the investment risk.

On this point, the Grassley-Daschle bill S. 466, which copies the Department of Energy's original recommendation, goes to an extreme in requiring public utilities to the flow-through the tax credit. In other words, the tax benefit is to be passed on to the ultimate consumer in the form of lower rates. The reason for this provision in the Grassley-Daschle bill is difficult to comprehend. Tax policy since 1971 has required utilities to normalize instead of flow through tax benefits. Normalization allows the investor to share in the tax incentive for the particular investment. If the investor derives no benefit but only passes it to the rate payer, the investor has no incentive to invest in a wind project as opposed to a conventional generation plant. This flow-through provision in the Grassley-Daschle bill would not provide the intended incentive for renewable energy and it also runs contrary to established tax policy.

IV. Credit Offset.

A. Comparison of Proposals. Both the AWEA and the Grassley-Daschle bill reduce the production credit in proportion to grants, tax-exempt bonds, and subsidized energy financing under section 29(b)(3). The credit would not apply to that percentage of production which is attributable to the portion of the facility paid for by grants or similar subsidies. The Sharp bill has no comparable provision.

B. Explanation and Rationale. Without a credit offset provision, a taxpayer would receive the credits even if it constructed the generation facility with grants, tax-exempt bonds, or subsidized financing. Where the taxpayer does not incur the cost to construct the facility, it should not obtain the production incentive. The credit should be denied to the extent the facility is built with subsidies. This anti-double dipping provision has been a part of the energy tax incentives from their inception in 1978 and should be retained here.

V. Denial of Credit for Equipment Imported from A Country Engaging in Discriminatory Trade Practices.

A. Comparison of Proposals. The AWEA proposal would deny the production incentive for generating equipment manufactured or substantially produced in a country which, the Secretary of the Treasury finds, maintains trade restrictions or engages in discriminatory acts against United States equipment or services. The Grassley-Daschle bill and the Sharp bill have no comparable provision.

B. Explanation and Rationale. The U.S. Trade Representative is currently negotiating with the European Community for reciprocal access for electric generating equipment. The European electrical sector is dominated by government-owned monopolies or quasi-governmental companies; these entities have procurement practices which exclude foreign manufactured products. The European Community is in the

process of establishing uniform procurement standards that would create equal procurement opportunity for all member country manufacturers. The standards would also govern member countries' bidding practices within the European Community. But these European Community rules would not extend the opportunity to compete in procurement bidding to U.S. manufacturers. Therefore, the U.S. Trade Representative is seeking to gain equal entry for U.S. product while offering reciprocal benefit for European Community products.

Unlike the situation in Europe, most electrical generation investment in the U.S. is made by private companies. The denial of the tax incentive for generating equipment from a country that engages in discriminatory trade practices is designed to strengthen the U.S. Trade Representative's bargaining position. Otherwise, access and tax benefits will be extended to European equipment, before the European Community grants reciprocal opportunity for American equipment.

This provision is copied from section 48(a)(7) of the Internal Revenue Code of 1954 as amended by the Revenue Act of 1971. Congress in 1971 restored the original investment tax credit but denied the credit for property completed abroad and for property of predominantly foreign origin. This limitation lasted as long as the President imposed a general 10 percent import surcharge on all imported products; both were intended to correct the nation's trade deficit. However, if a foreign country treated similar property in a discriminatory fashion, the 1971 Revenue Act allowed the President to continue to deny the credit to specific property, even after the general import surcharge was lifted. For example, the Senate Finance Committee in its report cited actions which discriminated against U.S. films in favor of a foreign country's motion pictures, such as quotas, admissions taxes, and production subsidies. See Senate Report 92-437 (1st Sess., 92d Cong.), reprinted in 1972-1 C.B. 559, at p. 573. See also Senate Conference Report No. 92-1971 (1st Sess., 92d Cong.), reprinted in 1972-1 C.B. 644, at pp. 657 & 658.

Following this precedent established in the tax code to support U.S. trade negotiations in the early 1970's, the energy production tax incentives now under consideration should be supportive of current U.S. negotiations with the European Community in the electrical generation sector.

VI. Offset of Alternative Minimum Tax

A. Comparison of Proposals. AWEA proposes that the production tax credit for wind energy offset up to 25 percent of a C corporation's tentative minimum tax. Neither the Grassley-Daschle bill nor the Sharp bill have a comparable provision.

B. Explanation and Rationale. The Omnibus Budget Reconciliation Act of 1990 provides relief to oil and gas operations from the alternative minimum tax. This relief is intended to create an incentive for domestic oil and gas exploration and production. Specifically, section 58(h) of the Code was inserted to allow a deduction from the tentative minimum tax income for certain intangible drilling cost and certain depletion allowances. AWEA seeks similar relief from the alternative minimum tax for wind energy development to encourage domestic renewable energy production.

It is proposed that the production tax credit for wind energy be permitted to offset no more than 25 percent of a taxpayer's tentative minimum tax. Limiting the offset to 25 percent of the minimum tax would maintain the policy objective of imposing a requisite level of taxation on all taxpayers. But a measure of relief would be provided for corporate taxpayers who invest in renewable energy production. Only "C" corporations would be granted this relief, so as to avoid potential abuse in the case of individuals and partnerships. Precedent for this approach is found in the Tax Reform Act of 1986. Section 701(c)(4) of the 1986 tax act provided that the regular investment tax credits could reduce minimum tax liability by 25 percent.

VII. Carry Back and Carry Forward of Unused Credits.

A. Comparison of Proposals. AWEA proposes to allow taxpayers a 3 year carry back and a 15 year carry forward for unused wind energy production tax credits. The Sharp bill contains a similar provision, but the Grassley-Daschle bill does not provide any such carry over.

B. Explanation and Rationale. A taxpayer can offset only a certain percentage of tax liability with credits earned during the year. Existing section 39 of the tax code provides a carry back and carry forward for business tax credits. Without such a carry over, credits which exceed the current year's limitation will expire unused; in that case the tax credit incentive is lost. The tax code thus allows a taxpayer to use excess credits to offset tax liability in prior and future years. There is a 3 year carry back and a 15 year carry forward.

AWEA proposes that any production tax credit for wind energy above the limit which can be used in any one year be carried back or carried forward like other business credits.

Prepared Statement of Daniel A. Lashof

I. BACKGROUND

Thank you Mr. Chairman and members of the Committee. I am Daniel Lashof, Senior Scientist with the Natural Resources Defense Council (NRDC). Previously I was an Environmental Scientist at the Environmental Protection Agency, where I was the lead author of the Report to Congress Policy Options for Stabilizing Global Climate. I hold a doctorate in Energy and Resources from the University of California, Berkeley.

NRDC is a non-profit environmental protection organization, founded in 1970 and supported by more than 170,000 members. For more than a decade NRDC's energy program has promoted least-cost energy planning and investment on the state and Federal levels. NRDC is also a founding member of the newly formed Coalition for Energy Efficiency and Renewable Technology (CERT), which brings together the environmental community and the major renewable energy companies, particularly in California. NRDC has played an active role in the current debate on national energy policy, testifying before both the Department of Energy and the Congress on many occasions over the last two years. Regarding energy and environmental taxes in particular, NRDC has previously testified before the House Ways and Means Committee in support of the tax on ozone depleting chemicals that was passed as part of the Omnibus Budget Reconciliation Act of 1989, and in support of full social cost energy pricing at a general hearing on environmental taxes and fees in 1990.

I appreciate the opportunity to appear at this important hearing today to discuss tax incentives for energy efficiency and renewable energy technologies. As you have noted, Mr. Chairman, the United States needs an energy strategy that serves our long-term interests. A sound national energy strategy would enhance our economic well being, improve our national security, and protect the environment. Only a strategy with energy efficiency and renewable energy at its cornerstone can achieve these objectives simultaneously. NRDC greatly appreciates the Chairman's leadership in this direction.

II. THE ROLE OF TAX INCENTIVES

It has been increasingly recognized over the last few years that energy policy, environmental policy, and tax policy are inextricably linked. The recent report of the National Academy of *Sciences, Policy Implications of Greenhouse Warming,* notes that:

> On the basis of the principle that the polluter should pay, pricing of energy production and use should reflect the full costs of the associated environmental problems. The concept of full social cost pricing is a goal toward which to strive.

The myriad environmental crises and threats we face today can, in large measure, be traced to the systematic failure of markets to reflect the environmental insults associated with each transaction. I encourage this committee to take a comprehensive look out our tax code with the aim of implementing the Academy's recommendation.

Overall, let us tax more activities we would like discourage, such as pollution, and let us tax less activities we would like to encourage, such as employment and the

development of new environmentally sound industries. For example, a $5 per barrel surcharge on all oil consumption would raise about $30 billion per year. In addition, consider that a tax of $20 per ton of CO_2 emissions would raise almost $120 billion per year at current emission levels. This is equivalent to more than 40% of current payroll (social security and unemployment) tax revenues, the most regressive component of the income tax.

If fossil fuels and nuclear power were priced at their full social costs additional tax incentives for renewable technologies might not be needed. Even if all environmental costs of these energy sources were incorporated into market prices today, however, incentives would still be justified to allow the development of the renewable energy industry to catch up with that of its mature and historically subsidized competitors. Let us learn a lesson from Japan, and foster the development of an emerging industry with potentially enormous global markets, rather than attempt to delay the inevitable decline of the domestic oil industry with incentives to drain America first. If the United States fail to nurture a robust domestic industry capable of supplying the technologies needed to confront the environmental challenges we face as the 21st Century approaches, we will find ourselves importing these technologies from Germany and Japan.

III. LEGISLATIVE PROPOSALS

NRDC strongly supports the introduction of production-based incentives for a broad range of renewable energy technologies, including solar thermal, photovoltaic, wind, geothermal, and biomass. Such incentives should apply to both electricity generation (cents per kilowatt-hour) and direct heat applications (dollars per million BTU). In the long run, we believe that incentives that reward performance rather than investment will be most effective in achieving national policy objectives. We recognize the need for a transition period, however, during which time the tax payer should be allowed to choose between the existing investment incentive and the proposed production incentives. We therefore also endorse an extension of the investment tax credit for five years (S. 141) and its applicability against the alternative minimum tax (S. 1157).

Mr. Chairman, NRDC believes that S. 466 is an important step in the direction of sound energy tax policy. We are pleased to endorse this proposal with one exception. We believe that it would be unwise to grant the Secretary of Treasury and Secretary of Energy unconstrained discretion for one year to identify additional qualifying technologies. As presently drafted there are no criteria given to the Secretary in selecting any additional technologies. Indeed, it does not appear that the Secretary would even be limited to renewable technologies. We cannot support allowing administrative discretion to the extent that the potential environmental benefits of this legislation could be undermined by the addition of far from benign technologies. Beyond this critical concern, we believe that the bill could be strengthened by extending the qualification period to a full ten years before beginning to phase out the incentive. This would provide a more realistic time table to ensure maturation of the renewable energy industry given the long lead times involved in all major energy supply investments. In addition, we believe that the definition of qualifying biomass facilities is overly narrow. The apparent intent of these restrictions is to limit applicability of the incentive to a new generation of more advanced technology. This is a worthy goal, and to this end we suggest that biomass from wastes should qualify so long as the heat rate criterion of subparagraph ii (10,500 Btu's per kilowatt hour or less) is satisfied. Finally, we believe that the Committee should consider parallel legislation applying to direct thermal applications of renewable energy.

Before closing, I would like to express NRDC's commitment to working to reverse the decision by the I.R.S. to impose what amounts to a national conservation tax and our appreciation for your efforts in this regard. Allowing the I.R.S. to proceed down the course of collecting tax on utility rebates designed to encourage increased energy- and water-use efficiency would raise the cost of conservation at the most inopportune possible time—just as hundreds of utility programs around the country are moving into high gear. We welcome the introduction of S. 922 and look forward to working with you to perfect this legislation during markup by ensuring its application to all efficiency rebates offered by electric, gas, and water utilities.

Thank you again for your leadership. I would be happy to answer any questions.

PREPARED STATEMENT OF RAYMOND A. LEWIS

Mr. Chairman and Members of the Subcommittee on Energy and Agricultural Taxation, I am Raymond A. Lewis, President of the American Methanol Institute (AMI). AMI represents the methanol industry in the United States, including the companies that are now supplying the majority of U.S. methanol requirements for both fuel and chemical applications.

AMI greatly appreciates the opportunity to testify today. We look forward to working with the Subcommittee on legislation to stimulate the increased use of alternative transportation fuels through equitable, cost-effective and workable means.

Currently, the U.S. transportation sector is almost totally dependent on petroleum. The need to begin displacement of oil in the transportation sector is clear. The diversely constituted U.S. Alternative Fuels Council, on which I serve with representatives from oil, auto, alternative fuels, Federal, state and local governments, and consumer and environmental interests, recognized this need by voting overwhelmingly in December 1990 to recommend that the nation displace 25 percent of transportation fuels with non-petroleum alternative fuels by 2010. This important directive was introduced and sponsored by Senator Rockefeller, also a member of the Council, which is an advisory body created by the Alternative Motor Fuels Act of 1988, which he so ably guided through Congress.

AMI believes a growing consensus is developing that *methanol is the most promising alternative fuel available today* when critical factors such as the environment, energy security and diversity, economics, safety, engine performance, and availability are considered. This testimony will address the energy security and environmental benefits that methanol offers and will comment on tax incentives that would stimulate the use of alternative fuels.

Before I comment specifically, I think it is important to put methanol into perspective. Methanol is not a new product. For decades, billions of gallons of methanol have been distributed worldwide to millions of consumers. In the United States, methanol can be found in widespread domestic use in common household products from automobile windshield washing fluids to model airplane fuel. Methanol is currently stretching and improving gasoline supplies through a derivative called MTBE, the leading clean component of reformulated gasoline. Methanol and its derivative blends are in wide use as octane enhancers, and they benefit air quality by adding oxygen and reducing aromatics and other toxic air pollutants. Methanol will perform a key role in meeting the oxygenated and reformulated gasoline standards in the Clean Air Act Amendments of 1990.

Methanol is the fuel of choice for professional race car drivers because of its superior performance and proven safety record. Methanol is rated at approximately 115 octane, and its burning characteristics are safer than those of gasoline. The fiery auto crashes and driver deaths associated with car races before the mid-1960s, when gasoline was used instead of methanol, have largely been eliminated.

AMI approaches alternative fuels policy with a belief that several viable alternative fuels will support this important growth market much better than any one alone. We encourage broad competition in the market on equal footing. In developing comprehensive and equitable legislation, we believe it is crucial that a level playing field be established and maintained among the various alternative fuels. We believe in particular that the Federal Government should be careful not to legislate the use of one fuel over another, directly or indirectly through distorting subsidies or other incentives. Instead, Congress can and should establish energy and environmental standards, allowing market and regional considerations to determine which alternative fuel best meets the nation's diverse environmental and energy needs.

We advocate the use of methanol fuel because we believe it represents the best existing alternative fuel to meet a variety of key needs—including energy diversity, environmental quality, and consumer acceptance. We are pleased to be able to work with Congress toward establishing fair and equitable alternative fuel policies. Under such policies, methanol can and will contribute greatly toward decreasing the nation's reliance on petroleum, while at the same time advancing the nation's progress toward achieving clean-air goals.

Methanol can supply our fuel needs with real efficiency. It can be made from an abundance of feedstocks, including natural gas, coal, and biomass resources such as refuse and wood. Currently, methanol is most often made from natural gas because it is a readily available, clean and cost-effective feedstock. Methanol's versatility is illustrated in the chart attached at the end of my testimony. No other alternative fuel has such a broad variety of materials from which it can be made and so many important fuel uses.

Methanol has been evaluated by more experts than any other alternative fuel. In the late-1980s, the State of California conducted the most comprehensive study to date on alternative fuels and concluded that methanol is the clean alternative fuel best suited for broad market penetration. The Southern California Rapid Transit District recently concluded that "Currently, methanol is the most advanced in the development cycle, and we have demonstrated that it can work in Los Angeles and feel that, with proper training, there are no major safety hazards associated with this technology." A Booz, Allen & Hamilton study just completed for the Sacramento Regional Transit District (March 11, 1991), entitled "Alternative Fuels and Facility Conversion Study," concludes that only methanol at this time meets all Federal, state and local certification requirements for bus engine technology.

A growing number of methanol fueling stations are now being unveiled in California by ARCO, Chevron, Exxon, Shell and, most recently, Mobil, with the objective of having methanol available widely throughout the state. Major automobile manufacturers have also studied methanol fuels extensively and they, too, have concluded that methanol-powered vehicles represent the most economically viable and most consumer-friendly option available today.

Looking to a legislative framework for alternative fuels policy, the American Methanol Institute recommends that as this Subcommittee develops alternative fuels tax legislation, proposals be evaluated within the context of certain principles. These include:

- A recognition that policies to encourage diversification of energy sources should achieve meaningful displacement of petroleum in the transportation sector;
- A recognition that energy security can be enhanced through diversification of non-petroleum energy sources, both domestic and imported;
- A recognition that our nation benefits most from those fuels which are sustainable economically and that provide the greatest BTU value for the lowest overall cost;
- A recognition that equity in competition among non-petroleum alternative fuels is a key component of increased energy security through energy diversification. Where subsidies are used to accelerate initial production, distribution, or use of alternative fuels, those subsidies should be equitably distributed among the competing alternative fuels and not become instruments for new anti-competitive forces;
- A recognition that regulatory predictability can complement otherwise more expensive subsidies in introducing alternative transportation fuels;
- A recognition that, relative to existing gasoline and diesel, there are substantial efficiency and air quality improvements obtainable from non-petroleum alternative fuels.

Methanol as a fuel meets all of the above criteria. The American Methanol Institute strongly supports a competitive multi-alternative fuels national energy strategy. Within such a strategy, methanol will continue to demonstrate vigorously its growing value as an alternative fuel.

METHANOL ENHANCES ENERGY SECURITY

The need for oil displacement in the transportation sector to relieve our nation's near-total dependence on petroleum is by now well recognized, and agreement on this is nonpartisan. *The availability of methanol is sufficiently widespread and economic that it can displace major amounts of imported petroleum.*

The versatility of methanol sources and uses gives it the potential to increase energy security through diversification in two ways. First, it can be produced from a range of feedstocks including domestic renewable and waste sources. The principal current feedstock is abundantly available domestic natural gas. In addition, cellulosic biomass, municipal waste and sewage sludge, industrial byproducts, and coal are all potentially promising commercial feedstocks.

Second, methanol as a transportation fuel has a broad range of applications. Methanol and its derivative blends will play a key role in helping both oxygenated and reformulated gasoline meet Clean Air Act requirements. Methanol blends are already in wide use in the current gasoline pool as octane enhancers while helping to reduce aromatics and other toxic air pollutants. Methanol will also be a key alternative fuel for flexible fuel vehicles (FFVs) as M85 (85% methanol, 15% gasoline), and in dedicated vehicles as M100 (100% methanol). In heavy duty engines, particularly buses, methanol is a proven alternative to diesel fuel. In the future, methanol may be an ideal feedstock fuel for fuel cells to provide the ultimate clean and efficient transportation energy.

Relative to gasoline, methanol offers distinct energy security advantages, both as a domestic and imported transportation fuel. The American Methanol Institute be-

lieves that U.S. policy decisions alone will dictate the extent to which methanol is an imported or domestic product in the future. There is no reason why U.S. methanol needs could not be met with domestic U.S. production, given a Congressional determination to do so. Natural gas is today the most commonly used methanol feedstock. The U.S. has voluminous supplies of natural gas, enough to supply methanol needs well into the next century. Moreover, increased methanol demand offers new resource recovery opportunities for domestic gas reserves otherwise unable to find a market. Broadening the focus to North America, even more proven natural gas reserves are available in Canada, our nation's largest trading partner. Natural gas is also widely abundant throughout the Western Hemisphere, as well as being abundantly available from many of our Western world trading partners.

The current and potential abundance of methanol worldwide permits the United States to make a conscious policy choice about how our methanol needs will be met. It is important to appreciate that *methanol today is a predominately domestic product.* More than three-quarters of U.S. methanol consumption is produced domestically (see attached table). Together, Canada and the United States supply about 90 percent of U.S. methanol requirements. In fact, on a BTU basis, the United States, together with other North American sources, has enough methanol feedstock to exceed the requirements of the Clean Air Act Amendments *and* meet a broad-based alternative fuels program if the Congress should so choose.

Moreover, in an important market development that has occurred recently, the domestic natural gas industry has begun to offer long-term contracts to supply raw material for domestic methanol production facilities. With equitable Federal alternative fuel tax policies, there is every reason to believe that domestic methanol production can increase substantially. Sufficient capacity is idle, under construction, or available for recommissioning to fuel well over one-half million cars on M-85. The ability of U.S. methanol producers to contract for feedstocks long-term will remove what has been the most serious obstacle to domestic methanol production—the uncertainty of natural gas feedstock prices—and greatly facilitate U.S. production potential.

The extent to which future methanol growth will be domestic is largely for Congress to determine. In all events, whether domestic or imported methanol is used to displace petroleum, U.S. energy security will be enhanced. To the extent that methanol may be imported as U.S. demand grows, it will function as a clean fuel displacement for imported petroleum and will greatly diversify the geopolitical sources in our transportation sector. Energy links can be established through methanol which will further the economic stability of our allies and further our foreign policy objectives, without nurturing dependence on any one geographic region or potential cartel of producers. We believe energy security can best be accomplished through energy diversity. The American Methanol Institute concurs with the Department of Energy (April 16, 1991), referencing Energy Information Administration projections that foreign crude oil production increases by 2010 will be further concentrated in five Persian Gulf countries. AMI agrees with Department of Energy conclusions that the use of alternative fuels "replaces increased reliance on incremental world oil production of which four-fifths would be provided by five Persian Gulf suppliers."

In addition, the Office of Technology Assessment has testified (April 17, 1991) that alternative fuels offer energy security advantages over gasoline. This includes natural gas when imported as either liquified natural gas or when transformed into methanol, because these imports would come from much more diversified sources than oil, not subject to cartel-type activities.

ENVIRONMENTAL BENEFITS OF METHANOL

As Congress is well aware, some 96 areas across the United States currently are in violation of the health-based National Ambient Air Quality Standards for ozone, 41 areas violate the carbon monoxide standard and 73 exceed the standard for small airborne particulates. Motor vehicles are responsible for more than one-third of the smog problem and over two-thirds of the carbon monoxide problem. The introduction of large numbers of cars, buses and trucks using pure methanol (M100) and methanol blended with 15 percent gasoline (M85) would make a significant contribution to improving the air quality in air-quality nonattainment areas. All this will come in addition to the benefits from methanol-based reformulated and oxygenated gasoline.

Methanol vehicles emit less ozone-forming hydrocarbons, less NO_x, less particulates and fewer toxic compounds than their gasoline and diesel counterparts. Air quality benefits from the use of methanol range from dramatic pollution reduction for methanol in its pure M100 form to lesser but still substantial pollution reduction when methanol as a primary fuel is used in diluted M85 form or as a blend or an

additive to gasoline. The Environmental Protection Agency has reported that on a reactivity-equivalent basis, methanol flexible fuel vehicles (FFVs) are projected to emit at least 30 percent less volatile organic compounds (VOC) than conventional gasoline vehicles, while optimized, dedicated methanol (M100) vehicles are projected to emit 80 percent less VOC than gasoline vehicles. In addition, EPA has found that the use of methanol in motor vehicles will reduce the air toxics impacts of motor vehicle emissions, eliminating or reducing emissions of benzene, gasoline refueling vapors, 1,3-butadiene, and polycyclic organic material. The projected reductions in the number of cancer cases as a result of a clean fuels program, according to EPA, would be significant. [Analysis of the Economic and Environmental Effects of Methanol as an Automotive Fuel," EPA, September 1989.]

Our industry has recognized for years that formaldehyde and other aldehydes, which are produced from many fuels including methanol, ethanol, gasoline, diesel oil, and CNG, cannot be allowed to increase as a result of the introduction of alternative fuels. Exhaust catalyst technology is now in place and will improve rapidly to reduce aldehyde emissions from all vehicles to even lower levels. For example, California has regulated formaldehyde emissions from M85 vehicles so that public exposure will be no greater than that from gasoline vehicles. For the recent methanol diesel engines, the emissions are already substantially lower. EPA has concluded that methanol use in vehicles will cause no increase in formaldehyde levels in the atmosphere. [EPA, ibid.]

Methanol is recognized to provide very broad-based clean-fuel applications. Dedicated and flexible fueled vehicles represent excellent near-term approaches, in themselves and as transition vehicles to future highly-optimized, ultra-low-emission vehicles. Even the ultimate zero-emission vehicle for California may be achieved by a methanol-powered fuel cell. Here, too, the transportation industry is active through many research and development programs utilizing methanol. In the utility sector as well, methanol has co-firing applications which enhance both natural gas and coal combustion to reduce air pollution.

LEGISLATIVE CONCEPTS TO SPUR INTRODUCTION OF ALTERNATIVE FUELS

The American Methanol Institute supports a broad based, equitable and predictable alternative fuels policy. We support the concept of encouraging *increasing availability and use of alternative fuels for transportation on a phased-in basis over a period of years.*

AMI is pleased to support S. 1178, introduced and sponsored by Finance Committee members Senators Rockefeller, Danforth and Boren, together with a number of cosponsors. S. 1178 will provide a major step forward in furthering the Nation's energy security and promoting clean air.

S. 1178 is an innovative and realistic approach to resolving the familiar "chicken-and-egg" issue for alternative fuels: that vehicles capable of using alternative fuels would be available if fueling facilities were available, and fueling facilities would be there to meet vehicle demand, but each tends to wait for the other to go first. S. 1178 provides needed incentives by providing initial encouragement for both vehicles and their refueling infrastructure.

Importantly, S. 1178 provides a level playing field among the various alternative fuels. It does not preselect a certain fuel, but encourages equity in competition among a broad range including methanol, ethanol, and compressed natural gas (CNG). The cost is controlled, and equity is maintained among competing fuels, by defining and capping the allowable deductions at levels that should encourage all competing clean fuels relatively equally. By applying the bill to both business and nonbusiness use of clean-fuel vehicles, the effects will benefit a significant and broad cross-section of consumers. This is especially important in helping clean fuels to gain the acceptance and support of the general public that is needed to achieve substantial improvement in our energy security and environment.

For these reasons, AMI is very pleased to join together with the natural gas industry in support of S. 1178. I believe strongly that there are important applications for both methanol and CNG in the emerging clean fuels market. The fact is, of course, that our two industries are already closely connected because the U.S. methanol industry today uses over 125 BCF of U.S. natural gas to produce methanol. More than one-fourth of this is for clean-fuel applications today, such as the clean-fuel additive MTBE (methyl tertiary butyl ether), and it is the fastest growing segment of our business. Additional production facilities, using domestic natural gas to produce methanol for these products, are now being actively developed in order to meet clean air needs. S. 1178 provides a logical and needed transition to the next stage of clean-fuel usage, and we are very pleased to support its enactment.

On other matters of interest to this Subcommittee, AMI is exploring with natural gas and other fuel producers the desirability of modest tax incentives for domestic production of clean transportation fuels. As these discussions progress, we will be pleased to share with the Subcommittee specific possibilities for encouraging greater domestic production of clean transportation fuels.

Finally, we note that as the usage of clean transportation fuels increases, it is appropriate for Congress to consider the effects of the transportation fuel excise taxes on the availability of clean fuels, and on the competitive relationships among the various clean fuels. For example, gaseous fuels, as opposed to liquid fuels, now pay no excise tax at all, largely because the use of such fuels was never considered to occur in significant volumes in the past. With the increasing realization that clean fuels advance important national energy and environmental goals and will be available in increasing quantities, *we believe the time has come to establish excise tax parity among the various non-petroleum transportation fuels.* Here, as elsewhere, it is important that a level playing field be established among the competing clean fuels. We would be very pleased to work with the Subcommittee toward this goal.

In all, we believe it is strongly in the national interest that reliance on imported petroleum be reduced and that clean fuels be made more broadly available. AMI believes that methanol represents the most viable alternative fuel available today for meeting the Nation's needs. With far less support from the Congress than has been proposed for other alternative fuels, methanol fuels can provide the bridge from conventional gasoline to clean gasoline, to a much cleaner replacement for gasoline and finally to a zero emission technology. Methanol is economic and can use a wide variety of raw materials. Methanol is an important domestic and worldwide resource, offering the promise of advancing the nation's energy security by replacing significant volumes of imported petroleum. Its potential is enormous—including potential as a domestically produced fuel, at a cost of support per BTU that is lower than for any other alternative fuel and as a worldwide fuel when afforded the opportunity to compete on a level playing field.

We look forward to working with the Subcommittee in advancing S. 1178 and in further developing these legislative concepts into specific proposals. I would be pleased to answer any questions.

Attachment.

METHANOL: A DOMESTIC RESOURCE

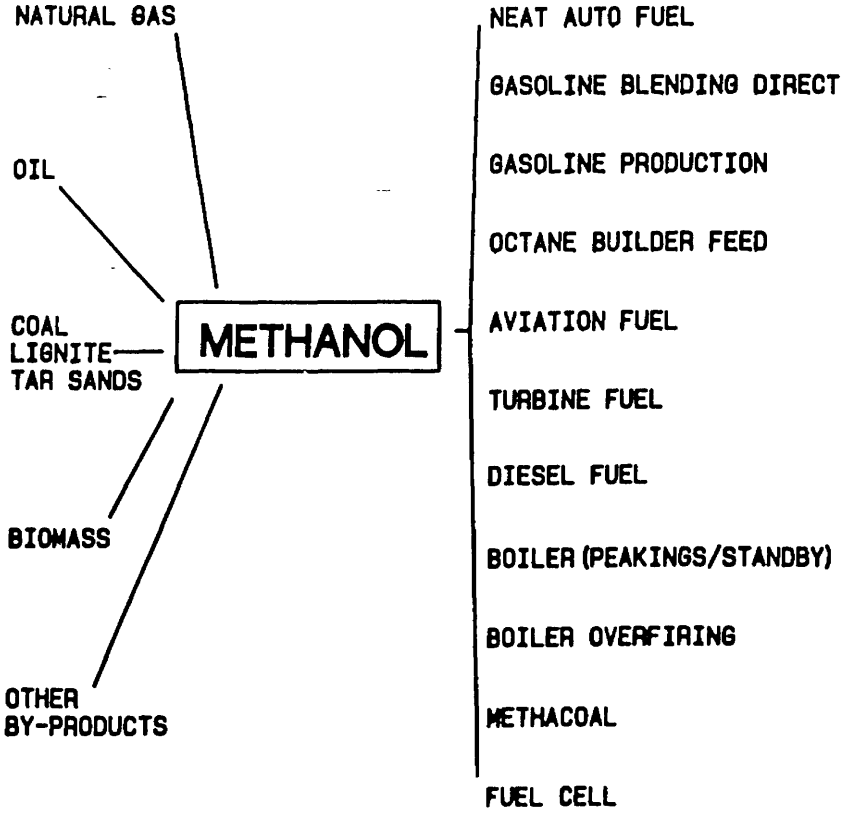
The U.S. is by far the largest supplier of domestic methanol. Together, the United States and Canada, our closest North American trading partner with whom we enjoy a preferential trading agreement, supply 90 percent of U.S. methanol consumption.

METHANOL STATISTICS 1990

	Millions of gallons	Percent
Production	1,206	76
Imports:		
Canada	228	14
All others	161	10
Total	1,595	100

Source: Crocco & Associates, Inc., May 24, 1991 and February 22, 1991

NO OTHER FUEL OFFERS THE DIVERSITY OF METHANOL.



LEWIS2

PREPARED STATEMENT OF EDWARD M. MEYERS

Mr. Chairman and distinguished members of the Subcommittee: I am Edward M. Meyers and I am the acting chairman of District of Columbia Public Service Commission. I also serve on the Committee on Energy Conservation of the National Association of Regulatory Utility Commissioners or NARUC, on whose behalf I am testifying here today.

The NARUC is a quasi-governmental nonprofit organization founded in 1889. Within its membership are the governmental bodies of the fifty States engaged in the economic and safety regulation of carriers and utilities. The mission of the NARUC is to serve the public interest by seeking to improve the quality and effectiveness of public regulation in America. More specifically, the NARUC contains the State officials charged with the duty of regulating the retail rates and services of electric, gas and water utilities operating within their respective jurisdictions.

We greatly appreciate this opportunity to be here today to present our views on legislation to remove the taxability of utility cash rebates for conservation.

INTRODUCTION

The NARUC since 1989 has supported the enactment of legislation to overturn the Internal Revenue Service's technical advice memorandum, which interprets Section 61 of the Internal Revenue Code of 1986 as requiring the taxable treatment of utility cash rebates and requiring the reporting of such payments to the IRS when in excess of $600. The NARUC Executive Committee at its Summer Meetings in 1989 adopted a resolution calling on Congress to reverse this ruling (see the attached resolution).

The NARUC strongly believes that a balanced National Energy Strategy should encourage energy conservation. For both cost and environmental reasons, conservation is a vastly superior alternative to building new power plants. According to the Edison Electric Institute, the association representing investor-owned electric utilities, conservation programs are estimated to either eliminate or defer the need for an additional 23,000 megawatts or roughly 23 new power plants over the next 10 years. Moreover, these programs have helped to defer an estimated $20 billion worth of generating capacity to date.

It is common practice among many electric and gas utility companies to provide cash rebates to residential, commercial, and industrial customers who purchase energy efficient appliances, motors, and other energy saving devices and who otherwise participate in energy efficiency programs. In the District of Columbia, the Potomac Edison Power Company or PEPCO, which my commission regulates, has a number-of energy rebate programs in effect that cover all customer classes. An analysis of these programs shows that PEPCO derives as much as 80 percent of its energy savings from these programs and that nearly 10 percent of its total system capacity may be reduced by demand-side programs that use rebates. I should add that the District of Columbia National Gas Company, another utility we regulate, offers a variety rebate programs that also help reduce gas customer demand.

Despite these examples and studies validating the worth of energy conservation rebate programs, the Administration's National Energy Strategy, released this past February, refused to endorse legislation that would have overturned the IRS's policy on energy conservation rebates. Instead, the NES document states that the IRS should treat as exempt from Federal taxation utility bill discounts that electricity consumers receive for energy conservation investments. Bill discounts, however, are not being taxed by the IRS. Moreover, commercial and industrial customers use their energy bills as deductions from gross income, so a policy that encourages bill discounts over cash rebates would only serve to increase these large energy users' taxable income, and thus take away their incentive to invest in energy efficient devices.

It also makes no sense to tax these rebates because utility customers are already paying the expenses of the rebate programs through the rates charged by regulated utilities. By taxing these rebates, utility ratepayers who invest in energy efficient appliances and devices would be forced to pay twice for the same thing. This is patently unfair to these customers.

We believe that the Congress has the opportunity to correct this serious deficiency in the National Energy Strategy legislation that is pending in the Senate and House, and include legislation that exempts energy conservation rebates from gross income.

ASSESSMENT OF LEGISLATION

The NARUC, along with a broad-based coalition of consumer, environmental, and electric industry groups, has supported S. 922, the measure introduced by Senators Daschle and Grassley. This bill would exclude from gross income rebates provided by electric utilities to residential, commercial or industrial customers for the purchase or installation of energy conservation measures. As stated in the letter sent to members of the Senate regarding S. 922, we are not opposed to expanding this legislation to include rebates for energy efficiency investments made by gas utility customers or conservation rebates from water utilities.

One of the stumbling blocks in attempting to enact conservation rebate legislation has been the issue of the revenue loss impacts. But in our opinion, the Congress must begin to look beyond the revenue loss question and see the tremendous savings to customers and the U.S. economy that can be realized by enacting rebate legislation that covers gas as well as electric utility rebate programs. The $20 billion in estimated savings from deferred power plant construction cited above far outweighs even the worst revenue loss estimates that have been calculated for previous bills that covered rebates for electric, gas and water customers. It also should remembered that before the IRS policy of taxing conservation rebates, the Federal government did not have a revenue stream from conservation rebates. So the legislation would not be taking away from U.S. Treasury a well-established revenue source, but remove a tax that acts as a clear disincentive to investments in energy conservation.

In our view, adding gas conservation rebates to this legislation would not significantly increase the revenue loss estimates because it is our understanding that electric utilities spend approximately three times more than gas utilities on cash rebate programs.

As I stated above, the NARUC believes the non-taxability of conservation rebates should be made part of comprehensive energy strategy legislation. To this end, S. 922 and the other bills that have been introduced should allow all utility rebate programs to compete fairly so that the goal of producing real energy savings is met.

CONCLUSION

Overturning the IRS policy of taxing conservation rebates is not only good energy policy, it is good tax policy as well. We believe that the savings for our economy as a result of enacting this legislation would be enormous while the environmental benefits, although more difficult to measure, could produce savings that are just as great.

The NARUC commends Senator Daschle and his subcommittee for holding this hearing on this important legislation. We look forward to working with the chairman and the subcommittee as you prepare to act on these bills. I would be glad to answer any questions you may have.

APPENDIX—RESOLUTION URGING CONGRESS TO AMEND THE INTERNAL REVENUE CODE TO TRFAT UTILITY CASH REBATE PROGRAMS FOR ENERGY EFFICIENCY EXPENDITURES AS NON-TAXABLE INCOME TO THE PROGRAM PARTICIPANTS

WHEREAS, It is common practice among many electric and gas utility companies to provide cash rebates to residential, commercial, and industrial customers who purchase energy efficient appliances, motors, and other energy saving devices and who otherwise participate in energy efficiency programs; and

WHEREAS, National energy policy should encourage greater participation in public utility energy efficiency programs; and

WHEREAS, The U.S. Internal Revenue Service (IRS) has recently promulgated Private Letter Ruling No. 8924002 which interprets Section 61 of the Internal Revenue Code of 1986 as requiring the taxable treatment of public utility cash rebates and requiring the reporting of such payments to the IRS when in excess of $600; and

WHEREAS, This ruling will have the practical effect of diminishing participation in such programs and increasing the administrative cost and burden of administering such programs; now, therefore, be it

RESOLVED, That the Executive Committee of the National Association of Regulatory Utility Commissioners, assembled at its 1989 Summer Committee Meeting in San Francisco, California, urges Congress to amend Section 61 of the Internal Revenue Code to specifically exempt from Federal taxation public utility cash rebates to consumers when such rebates are associated with efforts to foster the more efficient usage of electricity and natural gas.

Sponsored by the Committees on Electricity and Energy Conservation, Adopted July 27, 1989, Reported NARUC Bulletin No. 32-1989, page 17.

PREPARED STATEMENT OF THOMAS D. MORRON

Mr. Chairman and Members of the Subcommittee: My name is Tom Morron. I am Vice President of Customer Service and Marketing for the Edison Electric Institute (EEI). On behalf of EEI and the American Public Power Association (APPA), I want to thank the Subcommittee for providing us the opportunity to appear before you today to discuss legislative proposals to provide tax incentives to increase energy efficiency.

The Edison Electric Institute is the association of investor-owned electric companies. Its members serve 96 percent of all customers served by this segment of the industry. They generate approximately 78 percent of all the electricity used in the United States and serve 74 percent of all ultimate customers in the nation. The American Public Power Association (APPA) is the national association representing more than 1,750 consumer owned utilities.

The electric utility industry strongly supports effective energy efficiency as a major element of national energy policy. Effective utilization of our energy resources should be a primary concern in the development of our nation's energy, environmental, economic and tax policies. For almost 20 years, the electric utility industry has been a leader in promoting energy efficiency through various methods. Approximately 500 electric utilities are sponsoring over 1,300 demand-side management (DSM) programs nationwide involving some 15 million customers. These programs involve more than $1.3 billion of investments dollars per year. These initiatives have deferred the need for 20,000 megawatts of new generating capacity, a 3.7 percent reduction in summer peak demand, and have reduced annual net Kilowatt-hour sales by 1.3 percent. By the year 2000, these programs are expected to reduce annual net sales by 3 percent and summer peak demand by 6.7 percent.

Despite this success, one important aspect of many efficiency programs, the use of financial incentives to encourage the purchase of energy efficient equipment and measures, is jeopardized by a 1989 ruling of the Internal Revenue Service (IRS). The Service has taken the position that these incentives paid by a utility should be included in a customer's gross income. Specifically, in a 1989 Technical Advice Memorandum, the IRS indicated that a rebate paid by a rural electric co-op to a customer to reduce electricity use at a specific time was taxable income. Taxing these incentives reduces their value to customers and thereby reduces participation in energy efficiency programs. Therefore, the electric utility industry strongly supports legislation such as S. 922, clarifying that payments by utilities to encourage energy efficiency are not taxable to the utility customer.

ENERGY EFFICIENCY PROGRAMS

Rebate programs are an increasingly popular and effective method of encouraging customers to purchase more energy-efficient appliances, air conditioning systems, lighting products, motors and other conservation measures. In 1987, We Consumer Energy Council of America Research Foundation and the American Council for an Energy-Efficient Economy surveyed utilities across the country and found that of the 132 utilities responding to the questionnaire, 59 had rebate programs. The study concluded that 35 percent of the nation's electric utility customers are served by utilities that have some form of an energy efficiency rebate program. If rebates are taxable, the number of customers who participate in energy efficiency programs will decline, as will the resulting energy savings.

Rebate programs are widely used because they conserve energy in a cost-effective manner. A number of utilities have conducted studies on how financial incentives influence program participation. These studies demonstrate that financial incentives can significantly increase purchases of high-efficiency appliances and other conservation measures. The New York State Electric and Gas Corporation, for example, found that the market share for energy-efficient refrigerators was nearly 60 percent when $50 rebate was provided, as compared to 40 percent with a $35 rebate, 35 percent when only advertising was utilized, and 15 percent with no rebates or advertising.

As these studies demonstrate, taxing these rebates would be a major disincentive to invest in conservation, because consumers are generally unwilling to pay more at the time of purchase even to save more money in the long run. Customer rebates

can play a significant role in overcoming this "buy down" of the original cost of conservation efforts. By this means, utilities can encourage activities that benefit the entire energy customer base.

EFFECTS OF TAXING ENERGY CONSERVATION AND EFFICIENCY REBATES

The taxation of energy conservation and efficiency rebates has far-reaching importance for our Nation. It is critically important that our Nation's tax policies work in harmony with, and not counterproductively to, other national policies. Some of these effects can be summarized as follows:

- Energy conservation and efficiency programs are a key element of a strategy available to utility companies in meeting environmental objectives, including meeting the emission requirements of the Clean Air Act of 1990. It is fundamentally important that the nontaxability of these rebates be clarified as soon as possible so that this strategic element can be utilized.
- Energy conservation and efficiency programs have a significant impact on curtailing peak electricity demand which is generally provided through oil and gas peaking generating units. By curtailing peaking demand, fewer power plants need to be built, and less fuel is consumed. Less reliance on our Nation's limited oil and gas supplies reduces the need for greater foreign fuel imports and helps narrow the balance of our Nation's trade deficit.
- Energy conservation and efficiency programs contribute to a more productive economy. They are essentially able to produce the same gross national product with less energy use and therefore less cost. Energy conservation and efficiency aids our Nation's competitive position by reducing the overall cost of U.S. goods and services.

IRS POSITION

The electric utility industry strongly believes that amounts paid to our customers to accomplish the national objectives discussed above should not be taxable. We believe this conclusion is clearly supported by the body of existing tax law and authorities with respect to the nontaxable nature of trade rebates.

Following issuance of the IRS ruling, the broad-based coalition supporting S. 922 wrote the Internal Revenue Service in November 1989, detailing a number of arguments to support excluding conservation rebates from gross income, even under current law. In summary, we argued that:

- Trade rebates and discounts historically have been excluded from gross income.
- Inducements to purchase items also have been excluded from income, and these payments—in this case electric utility rebates—are inextricably related to the reduction in demand for electricity.
- Rebates have been treated as adjustments to the sales price of the equipment if entitlement to the rebate pursuant to the agreement between the seller and the purchaser is automatic by virtue of the purchase (i.e., no further action is necessary).
- As with auto rebates, the amount of the rebate is established at the time of the sale.

EEI and APPA, on whose behalf I am appearing today, signed this submission, as did the American Council for an Energy Efficient Economy, the National Association of Regulatory Utility Commissioners and the National Rural Electric Cooperative Association. I have brought a copy of our letter to the IRS, and with the Chairman's permission, we would like to submit a copy for the hearing record. We believe these arguments make a strong case for excluding energy conservation rebates from gross income.

NATIONAL ENERGY STRATEGY

The electric utility industry supports the Administration's efforts in the National Energy Strategy to make non-refundable credits on a customer's energy bill nontaxable, a position maintained by the IRS since 1989. However, we believe that this approach is insufficient to achieve maximum energy efficiency.

Research by the Department of Energy, the Electric Power Research Institute, National Labs, academic institutions, and others, as well as utility program experience to date, has evaluated various energy efficiency program delivery mechanisms, including information programs, rate incentives, subsidized loans, and rebates. All of these mechanisms are in use and can be effective, depending upon the particular energy efficiency program objectives and design. However, rebates have been shown to be the most effective mechanism for inducing individuals and businesses to pur-

chase and install conservation devices, thereby overcoming known market imperfections related to energy efficiency investments, or initial costs.

Overcoming these imperfections (e.g., incomplete knowledge and limited access to capital markets) is the principal rationale behind utility- and government-sponsored incentive programs. As evidence of the significance of these market imperfections, empirical studies have shown that energy conservation decision-making in the residential and commercial sectors exhibits an effective discount rate (or hurdle rate) as high as 50–60%. (In other words, consumers will require at least a 50% return on their investment to overcome the up front costs of investing in energy efficiency.) Similar research shows high hurdle rates for energy efficiency investments in the industrial sector as well. As a result, high hurdle rates imply that reducing the initial investment for purchasing and installing conservation devices can serve to overcome a major impediment to utility customers.

REBATES VERSUS RATE REDUCTIONS

We believe that we use of direct rebates to the customer is an integral part of a utility program and in most instances cannot be replaced by credits or rate modifications. Rebates—and not rate incentives—have been shown to be the most effective mechanism for inducing individuals and businesses to invest in conservation devices, thereby overcoming the known barriers related to energy efficiency investments. There are a variety of needs and motivations that affect customer interest and participation in utility-sponsored efficiency programs. While economic factors are of critical importance in a customer's decision to accept the utility's offer of a financial incentive, a number of studies have documented that other factors such as risk aversion, time management (the "hassle" factor), the economy, who receives the incentive, cash flow, and required paperwork are also important in program participation. Effective program design involves understanding the customer's needs and selecting the energy efficiency program options and features that target particular market segments and thus improve program effectiveness.

Several utilities indicate that direct cash rebates to residential customers are the most effective form of financial incentive for the following reasons: customers are familiar and comfortable with rebates due to their use by many consumer product companies; customers often pay cash for efficient technologies, and rebates give instant satisfaction; utility bills can be confusing, thus bill credits can obscure the incentive; and, rebates assure that the purchaser of the equipment receives the cash.

Given the diversity of electric end-uses, technology options, target populations, and other features which must be considered in designing energy efficiency programs, delivery of program incentives through only rates or credits would be administratively burdensome, relatively inflexible, and costly to utilities and ultimately to their customers. Attached to this statement is a typical program, using Potomac Electric Power Company as a representative utility, which highlight the operation of these programs.

As to the commercial and industrial sectors, while the potential for energy savings there is large, program participation rates have been relatively small, due in a large part to the complexities of the financial transactions and the paperwork. For new construction where energy efficiency improvements are extremely cost effective, it is almost essential that the incentive go directly to the decision-maker as early in the design phase as possible. The cash rebate is more effective in doing this than a bill credit or rate reduction. Cash flow is a critical element in commercial construction and any delays can cause program non-participation.

Through focus groups and customer interviews, New England Electric System (NEES) found that the high participation rates in their Energy Initiative commercial and industrial retrofit program were attributable to allowing the customer control over the incentive mechanism. Approximately 90% chose to give the rebate directly to the contractor rather than receive the money themselves either in the form of a check or a bill credit.

In the commercial and industrial sector, a bill reduction as proposed in the National Energy Strategy would compound the low participation problem by adding a timing element which reduces the value of the incentive. This is because a credit on a bill will result in an immediate decrease in deductible expenses for the customer, which would increase taxes paid by a profitable company. On the other hand, a rebate would generally allow the customer to reduce the basis of the energy efficient equipment, tending to decrease expenses over the life of the property.

Another problem in the commercial sector relates to the separation of responsibility in a corporation where the division that pays the energy bill may not be the division responsible for capital expenditures by the company, resulting in a lack of motivation to purchase the energy efficient equipment. As well, management com-

panies may have the operating expense responsibility while the owners have the responsibility for purchase of the equipment.

CONCLUSION

We believe that our Nation's tax policies should be consistent with and support energy efficiency. We so believe that the proper tax treatment of rebates is to exclude them from income to the customer. It is unclear and makes no sense, from a national tax policy standpoint, why a credit on a bill should be treated any different from a direct rebate to a customer. The substance, not the form, should dictate its tax results. Therefore, the electric utility industry along with many consumer and environmental organizations are in strong support of your desire to clarify the tax code to exclude utility rebates for energy efficiency from gross income. We look forward to working with you and the Finance Committee to generate support for this initiative in Congress. Mr. Chairman, this concludes my prepared statement. I would be pleased to answer any questions you or the members of the Subcommittee may have.

JULY 1989

CARBON DIOXIDE REDUCTION THROUGH ELECTRIFICATION OF THE INDUSTRIAL AND TRANSPORTATION SECTORS

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EEI EDISON ELECTRIC INSTITUTE

EXECUTIVE SUMMARY

The electric utility industry as part of its on-going efforts to minimize environmental impacts has undertaken an assessment of the end-use opportunities to reduce carbon dioxide (CO_2) emissions. The electric utility industry is perceived to be the largest potential generator of global warming gases in the United States. This perception has led to the assumption that increasing electricity consumption cannot reduce global warming trends. The research discussed in this report, however, indicates that the assumption is incorrect. This report concludes that the use of highly efficient electric technologies in several traditionally fossil-fueled applications has the potential to reduce CO_2 emissions.

The higher efficiencies generally associated with electric end-uses could reduce CO_2 by decreasing overall energy use when compared with fossil-fueled processes. Since less energy is required to perform the same task, fossil fuel consumption can be reduced or eliminated, decreasing the amount of combustion products, including CO_2. Reductions in combustion products are dependent upon two factors: first, the relative technology efficiencies; and second, the mix of fossil and lower polluting non-fossil fuels used to generate electricity.

Our studies show that increased electrification of certain applications in the industrial and transportation sectors could reduce the amount of carbon dioxide generated nationally by fossil fuels by at least six percent. A number of commercially available and competitive electrotechnologies could be substituted for fossil fuel processes, resulting in a reduction of industrial CO_2 emissions by over 17 percent and transportation emissions by over eight percent. Reductions of other global gases and additional pollutants are possible as well, but have not been investigated as part of this report.

Introduction

Carbon dioxide is produced when fossil fuels are burned for electricity generation, transportation, and manufacturing purposes. Since CO_2 is estimated to represent approximately 50 percent of the gases contributing to potential global warming trends, it is the focus of this report. Other major gases identified as contributing to global warming include chlorofluorocarbons, methane, and nitrous oxide.

According to the United States Department of Energy (DOE), the electric utility industry produces approximately 35 percent of the total man-made CO_2 generated in the country. The transportation sector produces 32 percent, and the industrial sector 30 percent.

This study, which was conducted by the Energy Research Group, Inc., for the Edison Electric Institute focuses on ways to utilize existing high-efficiency electrotechnologies resulting in a net reduction in the nation's overall CO_2 production.

Summary of Results

Significant CO_2 reductions can occur by substituting electricity for fossil fuels in several industrial applications. By substituting the following electrotechnologies for comparable fossil-fueled processes, a minimum reduction of 17 percent in annual CO_2 generation from the industrial sector may be realized:

- electric arc furnace
- induction heating
- electric glass melting, annealing, conditioning
- infrared heating
- freeze concentration

Electrotechnologies are already gaining wide-spread acceptance within the industrial sector because of their high efficiencies, precise energy control capabilities, and high processing and production rates. The fact that they are CO_2 reducing, as well, should provide an added incentive for their development and use.

Electric modes of transportation also have CO_2 reducing potential. An 8.2 percent reduction in the total amount of CO_2 currently produced in the transportation sector could be realized from direct substitution of gas or diesel cars or buses with equivalent electric models, and cross substitution of more efficient electric modes of transit for less efficient fossil-fueled modes.

Additional research is needed to further quantify the CO_2 reductions of these and other potential CO_2 reducing technologies on a nationwide basis. The preliminary findings, however, provide a basis for future R&D and legislative efforts to reduce CO_2 through the use of highly efficient electric technologies.

The research effort was comprised of several steps, each of which is summarized below.

The Electric Utility Sector: Developing a Basis for Comparison

To compare CO_2 production in comparable fossil fuel and electric end-uses, the total amount of CO_2 produced by the utility sector in 1988 was calculated and an average "pounds of CO_2 per kilowatt-hour (kWh) generated" was estimated. Only direct CO_2 emissions from combustion were considered in the analysis. Indirect CO_2 emissions during fuel extraction and refining processes for coal, natural gas, and petroleum were not included.

In 1988, based on the national average fuel mix, 1.39 pounds of CO_2 were produced for every kWh generated. This amount is expected to remain almost constant over the next seven years with a slight decreasing trend due to increases in nuclear and hydroelectric generation and a trend towards gas-fired small power production facilities. The findings are based on the nation's average rather than marginal fuel mix for several reasons, the most important being that the mixes are similar. In the short term, natural gas and oil currently predominate throughout the country as marginal units. In the long term, according to the NERC and DOE projected 1997 fuel mix, the fuels used will generate slightly less CO_2 per kWh than the current mix. Thus, when the short and long term factors are considered, a trend exists that will reduce the amount of CO_2 generated to meet new electrification needs. The national average mix was also used to limit speculation on future marginal units, and to increase the study's usefulness on a national basis. As electric utility fuel mix compositions vary significantly by region, different levels of CO_2 generated per kWh are possible and need to be analyzed if individual region or utility specific impacts are to be evaluated.

In order to evaluate electrotechnology substitution potential in this analysis, CO_2 production for each fuel type on a BTU basis was evaluated. The results are provided below:

CO_2 Generated per BTU
Delivered from Various Fuels

Electricity	-	3.9×10^{-4} lbs CO_2/BTU
Coal	-	1.9×10^{-4} lbs CO_2/BTU
Oil	-	1.7×10^{-4} lbs CO_2/BTU
Natural Gas	-	1.2×10^{-4} lbs CO_2/BTU

These estimates were used to compare the CO_2 reducing potential of electrotechnologies in the industrial and transportation sectors. Although electricity is more CO_2 intensive than other fuels, power plant conversion losses have been taken into account, and many electric end-uses are significantly more energy

efficient than comparable fossil-fueled processes, lowering total BTU requirements considerably.

The Industrial Sector:
Electrotechnologies that Can Reduce CO_2 Levels

Electrotechnology substitution possibilities were considered in those manufacturing industries that consume the largest amount of fossil fuels, and where it has been determined that electrification potential is the greatest. These include:

- the primary metals industry (SIC 33)
- the stone/clay/glass industry (SIC 32)
- the chemicals industry (SIC 28)
- the petroleum refining industry (SIC 29)
- the pulp and paper industry (SIC 26)
- the food industry (SIC 20)

Based on literature research, the following electrotechnologies were identified as having the greatest potential to reduce CO_2 levels:

- Primary Metals/Metals Processing Industry:
  - electric arc furnace
  - induction heating
  - induction melting
  - plasma-fired technology
  - infrared heating

- Stone/Clay/Glass Industry:
  - electric glass melting, conditioning, and annealing

- Food, Chemical, Petroleum and Paper Industries:
  - freeze concentration

Several other industrial electrotechnologies may have CO_2 reducing characteristics as well. However, this analysis was limited to the selection of seven technologies for detailed evaluation.

CO_2 reductions were found to exist in applications involving: electric arc furnace; induction heating; electric glass melting, conditioning, and annealing; freeze concentration; and infrared heating. Use of induction melting and plasma-fired cupola for foundry melting were not found to produce CO_2 savings, except in regions where significant quantities of these non-CO_2 producing fuels are used to generate electricity.

This analysis focused only on quantifying CO_2 reductions when replacing existing fossil-fueled technologies with electric technologies, without evaluating in detail other advantages or disadvantages of electric substitution.

The results of the industrial analysis are summarized in Table E-1. Carbon dioxide reductions on a unit or process basis were calculated for most of the electrotechnologies. No attempt was made to assess the market penetration rates of most of the electrotechnologies because data is limited in this area. The rates provided were derived from research conducted by the Electric Power Research Institute (EPRI). Of those electrotechnologies for which industry-wide reductions were projected (i.e., the electric arc furnace and freeze concentration), CO_2 reductions represent about 17.4 percent of the total industrial sector's annual CO_2 emissions, or 4.1 percent of the total man-made CO_2 produced annually in the United States.

Transportation Sector: Impacts of Electric Transport

Two major areas of CO_2 reduction were evaluated in the transportation sector. The first was the direct substitution of electric powered vehicles for fossil-fueled vehicles, including automobiles, light trucks, trains and buses. The second was the cross substitution of more efficient electric modes of transit for less efficient fossil-fueled modes, such as electrified rail as an alternative for trucking containerized type shipments.

Total CO_2 production rates for each type of transport were estimated by deriving the energy requirements by type. The results are summarized in Table E-2. Conclusions drawn from this table are for the total technical potential. No attempt was made to assess the market penetration rates or market saturation rates of each electric substitute, as data is also limited in this area. Total savings for the modes evaluated represent 8.2 percent of transportation sector CO_2 emissions, or 2.6 percent of total CO_2 produced in the United States.

Impacts of Findings

This preliminary research effort identified a number of electrotechnologies and electric transport opportunities that have the potential to significantly reduce CO_2 production in the United States. These CO_2 reductions are achievable in most cases with existing, commercially competitive technologies.

The findings of this research can contribute to the continued development and promotion of highly efficient electrotechnologies not only to decrease the production of CO_2 and reduce other transportation and manufacturing pollutants, but also to increase industrial competitiveness.

TABLE E-1

SUMMARY OF CARBON DIOXIDE REDUCTIONS FROM
ELECTROTECHNOLOGIES VERSUS COMPARABLE FOSSIL-FUELED PROCESSES
BASED ON 1988 NATIONAL AVERAGE ELECTRIC UTILITY FUEL MIX

INDUSTRY/ ELECTROTECHNOLOGY	ESTIMATED CO_2 REDUCTIONS/UNIT	PERCENT CO_2 REDUCTION/UNIT	PROJECTED INDUSTRY-WIDE ANNUAL REDUCTION (Year Total Market Potential Realized)
Metals:			
Electric Arc Furnace	2,626 lbs/ton steel	75%	2.10×10^{10} lbs (2000)
Induction Heating			
- Billet Forging	352 lbs/ton billets	35%	Unknown
- Steel Hardening	22,818 lbs/ton steel	44%	Unknown
Induction Melting	None	None	None
Plasma-Fired Cupola	None	None	None
Infrared Heating			
- Steel Coating	2.3 lbs/1000 ft of steel coated	46%	Unknown
- Coating/Curing Lighting Poles	23.5 lbs/pole manufactured	57%	Unknown
Glass:			
Electric Melting	64 lbs/ton glass	8%	Unknown
Electric Forehearth	40 lbs/ton glass	67%	Unknown
Electric Lehr	40 lbs/ton glass	67%	Unknown
Food/Paper/Chemical:			
Freeze Concentration			
- Milk and Whey	Unknown	Unknown	5.5×10^{8} lbs (2015)
- Black Liquor	Unknown	Unknown	2.9×10^{10} lbs (2022)
- Caustic Soda	Unknown	Unknown	6.6×10^{8} lbs (2000)
- Alcohol Refining	Unknown	Unknown	8.3×10^{8} lbs (2015)
- BTX	Unknown	Unknown	2.7×10^{9} lbs (2015)
- Other potential applications (see Table 3-7)	Unknown	Unknown	2.0×10^{11} lbs (2015) (rough estimate)

TABLE E-2
CARBON DIOXIDE REDUCTION FROM VARIOUS MODES OF ELECTRIFIED TRANSPORTATION

TRANSPORTATION MODE	BTU PER MEASURE REQUIREMENT	CO_2 PRODUCED PER UNIT (lbs)	PERCENT CO_2 SAVINGS	1988 TOTAL U.S. ENERGY REQUIREMENTS FOR TRANSPORT TYPE (Btus)	1988 TOTAL SECTOR CO_2 PRODUCED (lbs)	TOTAL CO_2 SAVINGS (lbs per year)
Passenger Vehicles						
- Automobile	6524/vehicle mile	1.141		1.05×10^{16}	1.84×10^{12}	5.3×10^{10}
- Electric Vehicle	2764/vehicle mile	1.118	2.09			
Trains (Passenger & Freight)						
- Diesel	3.23 (1/efficiency)	5.64×10^{-4}		6.56×10^{14}	1.15×10^{11}	
- Electric	1.18 (1/efficiency)	4.80×10^{-4}	14.89	(net of current electric use)		1.7×10^{10}
Buses						
- Gasoline Bus	1138/passenger mile	0.199		1.05×10^{12} *	1.84×10^{9}	
- Trackless Trolley	137/passenger mile	0.056	71.86			1.3×10^{8}
- Diesel Bus	771/passenger mile	0.135		4.59×10^{13} *	8.03×10^{9}	
- Trackless Trolley	137/passenger mile	0.056	58.52			4.7×10^{8}
Trucks **						
- Large Semi-Trailer Truck	1110/ton mile	0.194		1.34×10^{15}	2.34×10^{11}	
- Electric Train	255/ton mile	0.104	46.39	(32% of all truck Btus)		1.1×10^{11}
Total						1.9×10^{11}

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* Intra-city only.
** Cross substitution analysis.

MAY 1991

THE POTENTIAL FOR CARBON DIOXIDE REDUCTION THROUGH ELECTRIFICATION OF THE COMMERCIAL SECTOR

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EDISON ELECTRIC INSTITUTE

THE POTENTIAL FOR CARBON DIOXIDE REDUCTION THROUGH ELECTRIFICATION OF THE COMMERCIAL SECTOR

EXECUTIVE SUMMARY

A recent study conducted by Energy Research Group, Inc. (ERG) for the Edison Electric Institute (EEI) assessed ways to use commercially available, efficient electric technologies to produce a net reduction in the nation's overall production of carbon dioxide (CO_2). The study, Carbon Dioxide Reduction Through Electrification of the Industrial and Transportation Sectors,[1] concluded that increased electrification of certain applications in the industrial and transportation sectors could reduce the amount of CO_2 generated in the U.S. by fossil fuels.

This study was conducted to determine whether similar potential CO_2 reductions in the commercial sector are possible through increased electrification. Direct CO_2 emissions from the burning of fossil fuels in the commercial sector total around 700 billion pounds annually, or over six percent of the total CO_2 emitted nationally. This study evaluated the CO_2 emissions impacts of increasing the use of highly efficient electric technologies in the commercial sector in place of fossil fuels.

The higher efficiencies generally associated with certain electric end-uses have the potential to reduce CO_2 by decreasing overall energy use when compared with fossil-fueled technologies. Since less energy is required to perform the same task, fossil fuel consumption can be reduced or eliminated, thereby decreasing the amount of combustion products, including CO_2. Potential reductions are dependent upon two factors: first, the relative technology efficiencies; and second, the fuel mix used to generate electricity.

The substitution of average efficient electric equipment with high efficiency electric technologies also was evaluated. This provides an indirect reduction in electric utility CO_2 emissions, resulting from a net decrease in commercial sector electricity requirements.

Introduction

Carbon dioxide, generated when fossil fuels are burned for electricity generation, transportation and manufacturing purposes, is estimated to represent approximately 50 percent of the gases contributing to potential global warming trends. According to the U.S. Department of Energy (DOE), the electric utility industry generates approximately 35 percent of the total man-made CO_2 in the United States. The transportation sector generates about 32 percent, and the industrial sector, 20 percent. The remaining 13 percent is emitted from the residential and commercial sectors.[2]

Concerns about potential global warming increased pressure to amend the Clean Air Act and introduce more restrictive legislation on CO_2 and other emissions. Unfortunately, there may be strong public and legislative perceptions that the only solution to improving air quality lies in reducing electric generation and consumption. This study was conducted to show this assumption is invalid and that increased electrification of selected applications, in many cases, can reduce CO_2 emissions.

Electric Utility Analysis: Developing a Basis for Comparison

To compare CO_2 production from comparable fossil fuel and electric end-uses, the total amount of CO_2 produced by the utility sector in 1988 was calculated and an average "pounds of CO_2 per kilowatt-hour (kWh) generated" was estimated. As in ERG's previous study, only direct CO_2 emissions from combustion were considered in the analysis. For example, indirect CO_2 emissions during fuel extraction and refining processes for coal, natural gas, and petroleum were not included. Furthermore, due to the lack of data for comparison, the electrical transmission and distribution losses were assumed to have emissions impacts similar to fuel distribution losses.

Based on the national average fuel mix, 1.51 pounds (lbs.) of CO_2 were emitted for every kWh generated in 1988.* ERG's previous study calculated this amount to be 1.39 lbs/kWh. However, that estimate was based, in part, on projected data for 1988. For this commercial sector study, ERG revised this number to reflect actual, rather than projected, utility data for 1988. This number is referred to as the "base case" estimate throughout the report.

To illustrate the importance of utility fuel mix variations on the amount of CO_2 produced per kWh, CO_2 emissions from two different regions of the country were calculated. The Pacific Northwest Census Division, with a predominantly hydroelectric fuel mix, was selected as the low CO_2 per kWh case region. The East South Central Census Division, with a predominantly coal fuel mix, was selected as the high case region. Based on 1988 generation data, it was calculated that 0.41 pounds of CO_2 per kWh are generated in the Pacific Division (low case) and 1.80 pounds per kWh are generated in the East South Central Division (high case).

Although a more detailed estimation of utility CO_2 emissions would incorporate seasonal and time-of-day generation, as well as incremental economic dispatch factors, such an approach was beyond the scope of this preliminary effort. Therefore, to evaluate electric technology

* A recent analysis conducted by the Electric Power Research Institute calculated the average pounds of CO_2 emitted per kWh to be 1.48, or two percent lower than the 1.51 estimate. EPRI used a complex methodology, incorporating comprehensive fuel heat content data, that was beyond the scope of this effort.

substitution potential in this analysis, CO_2 emissions for each fuel type on a Btu basis were calculated as follows:

CO_2 Generated per End-Use Btu for Various Fuel Types	
Electricity • Low Case • Base Case • High Case	 1.2×10^{-4} lbs CO_2/Btu 4.4×10^{-4} lbs CO_2/Btu 5.3×10^{-4} lbs CO_2/Btu
Coal	2.2×10^{-4} lbs CO_2/Btu
Oil	1.7×10^{-4} lbs CO_2/Btu
Natural Gas	1.2×10^{-4} lbs CO_2/Btu

The Commercial Sector: Electric Technologies that Can Potentially Reduce CO_2

An evaluation of replacing commercial fossil-fired systems and existing electric equipment with efficient electric technologies was conducted to compare CO_2 emissions. The analysis focused on several end-uses including: space conditioning, hot water heating, and commercial cooking applications as well as the use of materials handling vehicles and peripheral office equipment (e.g., the facsimile, or fax, machine).

Electric Chillers

CO_2 emissions from electric air-conditioning systems were compared to gas-fired systems. It was found that electric chillers generate significantly less CO_2 under all three regional fuel mix scenarios compared to gas absorption chillers in several building types in different areas of the country. On a unit basis, savings up to 31 percent were calculated. Because gas cooling technologies are currently in limited use, equipment substitutions would not produce significant CO_2 savings. However, the CO_2 reduction potential of electric equipment could be a factor in the decision-making process for selecting new or replacement equipment.

Ground-Source Heat Pumps

Electric ground-source heat pumps offer several advantages over other conventional fossil-fueled and electric heating and cooling system alternatives. Most importantly, they reduce energy requirements by 25 to 60 percent compared to other system alternatives. They were

also found to emit 19 to 49 percent less CO_2 than other alternatives including: electric air-source heat pumps; electric resistance heaters; and natural gas and oil furnaces used in combination with electric central air-conditioning. Although ground-source heat pumps are not a new technology, it has only been in the past few years that they have begun to emerge as a viable HVAC system, primarily for residential use. Several successful installations at commercial facilities, however, have been made..

Heat Pump Water Heaters

Electric heat pump water heaters (HPWH) offer an efficient means of heating water for commercial facilities that have a high demand for hot water as well as a need for air cooling and dehumidification. Typical commercial HPWHs can be four to five times more efficient than fossil-fired units and three times more efficient than conventional electric units. Despite these high efficiencies, commercial HPWHs are relatively new and unknown in many markets.

An analysis of three case studies involving the use of HPWHs in restaurant, hotel and school applications revealed that annual CO_2 savings could range from about 100,000 pounds to over 4 million pounds. However, savings are very facility-specific and market penetration data on the use of commercial HPWHs do not exist.

Electric Cooking Technologies

Electric commercial cooking technologies were also evaluated for their CO_2 reduction potential. Specifically, electric fryers and griddles were compared to gas-fired models. It was found that efficient electric fryers generate less CO_2 than average gas-fired models under all three regional fuel mix scenarios, but compared to the efficient gas fryer, the electric fryer generates less CO_2 only under the low case regional fuel mix scenario. Electric griddles were not found to produce CO_2 savings compared to gas-fired griddles except in the low case fuel mix region, where significant amounts of low CO_2-producing fuels are used to generate electricity. These evaluations took into consideration the effects of full and part-load equipment conditions. However, a new electric induction griddle that is under development at EPRI is expected to be four times more efficient than the most efficient gas-fired griddle.

Materials Handling Vehicles

Materials handling vehicles, sometimes called forklifts, can be either electric vehicles powered by lead/acid batteries or internal combustion engine vehicles powered by natural gas, liquid propane or diesel fuel. CO_2 emissions from these various types of materials handling vehicles were calculated. Under all utility fuel mix scenarios, electric vehicles generate significantly less CO_2 than internal combustion vehicles. Under the national

average utility fuel mix scenario, or the base case, electric vehicles generate about 50 percent less CO_2 than other vehicle types.

Fax Machines

On a document basis, the fax machine has the potential to save between two and 10 times the amount of CO_2 that is typically produced from transporting documents via overnight delivery services. In the base case region, CO_2 savings of up to 64 percent theoretically can be realized by sending a document over a fax machine.

Impact of Findings

Table E-1 summarizes the key findings of the commercial analysis. As illustrated, this preliminary research effort identified a few electric technologies that have the potential to reduce CO_2 generation in the commercial and electric utility sectors. These CO_2 reductions would be achievable in several regions of the country with existing, commercially competitive technologies. Exact savings are dependent on several factors, the most important of which is the composition of the local electric utility fuel mix. Utility-specific analyses could assist in identifying CO_2 reducing characteristics of electricity in a given service territory.

Additional electric technologies should also be evaluated so as to identify all potential CO_2 reducing technologies. While preliminary, the findings of this study support the continued development and promotion of highly efficient electric technologies to reduce national energy consumption, increase productivity and improve the national economy as well as to assist in reducing emissions.

References:

1. Edison Electric Institute. *Carbon Dioxide Reduction Through Electrification of the Industrial and Transportation Sectors.* Prepared by Energy Research Group, Inc., Waltham, MA, (July 1989).

2. "Technical Feasibility and Implications of Reducing U.S. CO_2 Emissions in the Period from 1995 to 2010." Briefing to Al Streeb, Deputy Assistant Secretary for Energy Conservation, U.S. Department of Energy, (4 March 1988).

TABLE E-1

SUMMARY OF CARBON DIOXIDE REDUCTION FROM EFFICIENT COMMERCIAL ELECTRIC TECHNOLOGIES VERSUS COMPARABLE SYSTEMS

Efficient Electric Technologies vs. Comparable Systems	Estimated Annual CO_2 Savings (lbs/unit)			Percent Unit Base Case Reduction
	Low Case	Base Case	High Case	
Electric Chillers vs. Gas Fired Absorption Chillers				
• Northeast Region (Boston)				
- School	119,417	40,726	19,980	24%
- High-Rise Office	208,372	71,063	34,864	24%
- Health	735,302	250,767	123,026	24%
• Southeast Region (Miami)				
- School	471,707	160,871	78,923	23%
- High-Rise Office	838,750	286,047	140,334	24%
- Health	5,367,222	1,830,433	898,006	31%
Ground Source Heat Pump (4-ton)				
• Air-Source Heat Pump	5,525	20,178	24,273	26%
• Elec. Resistance (central A/C)	15,125	55,378	66,673	49%
• Nat. Gas Heating (central A/C)	49,925	13,378	3,073	19%
• Oil Heating (central A/C)	88,325	51,778	41,473	48%
Hot Water Heat Pumps vs. Alternative Systems				
• 50,000 Btu/h Unit				
- electric resistance	6,000	220,000	270,000	67%
- natural gas	120,000	40,000	20,00	27%
- oil	180,000	100,000	80,000	48%
• 250,000 Btu/h Unit				
- electric resistance	300,000	1,050,000	1,340,000	66%
- natural gas	600,000	200,000	90,000	27%
- oil	950,000	550,000	440,000	50%
• 1,000,000 Btu/h Unit				
- electric resistance	1,200,000	4,400,000	5,400,000	67%
- natural gas	2,400,000	800,000	400,000	27%
- oil	3,600,000	2,000,000	1,600,000	48%

TABLE E-1

(Continued)

SUMMARY OF CARBON DIOXIDE REDUCTION FROM EFFICIENT COMMERCIAL ELECTRIC TECHNOLOGIES VERSUS COMPARABLE SYSTEMS

Efficient Electric Technologies vs. Comparable Systems	Estimated Annual CO_2 Savings (lbs/unit)			Percent Unit Base Case Reduction
	Low Case	Base Case	High Case	
Cooking: Electric Fryers (high-efficiency)				
• Average Electric Fryer	479	1,765	2,103	9%
• Natural Gas				
- High-Efficiency	4,553	(4,475)	(6,856)	--
- Average	9,171	2,242	416	11%
Cooking: Electric Griddles*				
• Natural Gas	3,377	(2,473)	(4,118)	--
Electric Materials Handling Vehicles				
• Gasoline Vehicle	27,570	16,722	13,671	53%
• Propane Vehicle	25,831	14,983	11,932	50%
• Diesel Vehicle	28,092	17,244	14,193	54%
Document Transfer: Fax Machines				
Conventional Overnight Document Delivery Service	0.41	0.30	0.26	64%

* Using actual metered data, CO_2 emissions on a daily basis were calculated. Yearly savings were calculated by assuming the griddles are in operation 360 days per year.

PREPARED STATEMENT OF SENATOR DANIEL PATRICK MOYNIHAN

I would like to thank our distinguished panel of witnesses for being here this morning. Their testimony will give insight into what I believe is a very important issue, namely, the tax treatment of mass transit fringe benefits.

Current tax law contains a significant bias in favor of commuting by car and against using mass transit. An employer can provide unlimited parking benefits to employees—worth $250 per month in New York, $245 in Boston, and $120 in Los Angeles—on a tax-free basis, but any mass transit benefits in excess of $15 per month, or any van pool benefits, produce a tax liability for the employee. In short, you get a better deal under the tax code if you drive to work.

The effects of this policy are clear enough. According to the Urban Mass Transit Administration, 85 percent of employees drive private cars to work, 84 percent of whom receive free parking from their employer. A 1984 Port Authority of New York and New Jersey survey concluded that 64 percent of drivers commuting to Manhattan received some form of automobile-related subsidy from their employers.

This wastes energy. Some 60 percent of the petroleum used in the U.S. is already consumed by the transportation sector, and by one estimate, each additional person who drives to work uses an extra 200 gallons of gas per year. More, the General Accounting Office (GAO) estimates that traffic congestion wastes 2 billion gallons of gas a year. In Los Angeles County alone, congestion is said to waste upwards of 72 million gallons of gas annually. Waste only increases our dependence on foreign oil. Indeed, imported energy (mostly oil) represented 63.3 percent of the $101 billion trade deficit in 1990.

Current policy also worsens the acute traffic congestion and air pollution problems plaguing our cities. The streets and highways of almost every major city are nearly overwhelmed by the crush of rush hour traffic. The GAO has estimated that Americans waste 2 billion hours per year in traffic and that congestion could worsen by some 300 to 400 percent by 2005. More, automotive exhaust is the primary cause of urban air pollution. In New York City, 90 percent of the carbon monoxide and 50 percent of the ozone in the air can be traced to automobiles.

Current law also raises concerns about tax equity. Is it fair for a highly-paid executive to receive tax-free parking benefits worth $3,000 a year, while a clerical worker owes tax on transit passes in excess of $15 a month or the value of a ride in a company-provided van pool?

The idea of expanding the tax-free treatment of mass transit benefits has received wide support. The Administration endorsed the idea in its "National Energy Strategy," released in February 1991. And on May 17, the IRS announced its intention to increase the limit on allowable tax-free mass transit benefits from $15 to $21 per month, in recognition of cost-of-living increases. But I believe that $21 is far from enough, especially even the fact that the average nationwide cost for monthly mass transit commuting is $58.

My bill, S. 26, introduced on January 14, 1991, would raise the monthly allowance for tax-free mass transit benefits from $15 to $60. The tax treatment of parking and mass transit benefits will thus be brought into closer parity. In addition, the tax-free treatment of employer-provided van pool transportation, which was allowed to expire in 1986, will be reinstated by S. 26.

Many mass transit commuters incur transit costs which significantly exceed the national average, such as the typical worker taking a commuter train into Manhattan. For these commuters, the bill provides that the first $60 in monthly mass transit benefits will not be taxed, regardless of the total benefits received. (This repeals the arbitrary "cliff" effect of current law, under which the first $15 of tax-free benefits becomes fully taxable if the monthly benefit exceeds $15.)

The Joint Committee on Taxation (JCT) recently provided me with an updated revenue estimate for S. 26. And it is good news: the revenue impact is less than had been thought. **JCT estimates that S. 26 will cost less than $50 million in both FY 1992 and 1993 and $100 million per year after that.** The vanpooling element of S. 26 comprises less than $10 million per year of this cost. So for a modest loss in revenue, we can make a major stride in the direction of more sensible energy, environmental and transportation policy.

Studies have shown that expanding the tax benefits for mass transit would have a significant impact on commuting behavior. A 1990 study by the accounting firm of KPMG Peat Marwick, commissioned by the Urban Mass Transit Administration, concluded that raising the monthly tax-free transit allowance from $60 would increase transit ridership by about 16 percent and employer participation by about 27 percent. The 1984 Port Authority survey concluded that 26 percent of those who

drive to work would switch to mass transit if a significant transit benefit were provided.

Local governments and private industry are making commendable efforts to address urban traffic congestion and attendant air quality deterioration. In the New York City metropolitan area, the Port Authority of New York and New Jersey, together with the New York Metropolitan Transportation Authority and New Jersey Transit, have formed the TransitCenter, a public-private alliance to promote transit. TransitCenter has created the TransitChek, a low-cost and administratively simple way for private employers to provide transit benefits and encourage mass transit use by employees. Since October 1987, almost 1,300 companies have joined the TransitChek program benefitting some 20,000 employees. This is a good start, certainly, but in many cases the meager $15 per month benefit has dampened employers' enthusiasm, given the administrative burdens of participating in the program.

Employers across the country are also developing many innovative employee van and car pooling arrangements. Again, Federal tax policy ought not hamper these efforts.

I am pleased that S. 26 is being discussed here this morning. Tax policy ought not hinder sensible energy, environmental, and transportation policy. S. 26 will help ensure that it does not. At this point, I would ask unanimous consent that several letters in support of S. 26 be inserted in the record.

Attachments.

AMERICAN PUBLIC TRANSIT ASSOCIATION,
Washington, DC, January 22, 1991.

Hon. DANIEL P. MOYNIHAN,
U.S. Senate,
Washington, DC.

Dear Senator Moynihan: On behalf of the American Public Transit Association (APTA), I am writing to thank you for introducing S. 26, your bill to reform the tax code's treatment of public transit and vanpool benefits that U.S. employers provide to their employees. APTA represents all segments of the transit industry, including more than 460 transit systems of all sizes which provide more than 95% of the nation's transit rides. APTA members also include over 550 manufacturers, government agencies, consultants, and academic institutions that are involved with the industry and the provision of transit service.

S. 26 increases from $15 to $60 per month the amount of employer-provided transit benefits that is excluded from taxation. The bill also eliminates the *de minimis* provision that makes the entire benefit taxable if the amount exceeds $15 per month. In addition, it eliminates the taxation of employer-provided vanpooling benefits.

The passage of S. 26 or similar "transit pass" legislation will correct an unfortunate inequity in the Tax Code. The value of employer-subsidized parking, which may be worth as much as several hundred dollars per month, does not count as income to an employee. In contrast, the full value of an employer-provided transit pass counts as taxable income to an employee if the value exceeds $15 per month by as little as one cent. As a matter Of simple fairness, we believe that the tax code should be changed to eliminate this bias against commuting by means of public transit.

S. 26 also makes sense from an environmental perspective. In our nation's urban areas, vehicles are responsible for about half of ozone-causing emissions and over 90% of carbon monoxide emissions. As a consequence, government agencies and private employers alike will find it necessary to encourage greater transit use to achieve the air quality goals established by the Clean Air Act Amendments of 1990. Transit pass legislation such as S. 26 will make it far easier for employers to provide their employees with incentives to use public transit and vanpools, thereby reducing ozone-causing vehicle emissions in the nation's cities.

On January 17, APTA issued a press release about S. 26. Our January Legislative Report and our weekly newspaper, *Passenger Transport,* also covered the bill's introduction. We will continue our efforts to ensure that you receive the recognition that you deserve for introducing this bill. Please feel free to call Amy Coggin (202) 898-4116 if we can provide you with any assistance on the transit pass issue.

Again, thank you for sponsoring S. 26 and for all your efforts in support of an equitable and viable federal transportation policy.

Cordially,

JACK R. GILSTRAP.

CITY OF ROCHESTER,
Rochester, NY, January 22, 1990.

Senator DANIEL P. MOYNIHAN,
111 West Huron Street,
Buffalo, NY

Dear Senator Moynihan: I am writing to you regarding tax incentives for employers to cover a portion of the cost of public transportation or parking for their employees. It is my understanding that the Tax Reform Act of 1984 allows employers to issue transit passes or tokens to employees under the new Internal Revenue Code Section 132. An employer may provide $15.00 as a tax deductible benefit toward public transportation to employees as a nontaxable fringe benefit. If, however, the employer wishes to give $16.00 or more as a benefit, then the entire $16.00 is taxable.

At the same time, there seems to be no limit to the amount of the tax deductible benefits that an employer can offer for parking. To my mind, this system is topsy-turvy: it tends to discourage use of public transportation. I believe the public transit benefit should be increased.

Please keep me informed and let me know if there is anything else that I could do to support this or similar legislation that promotes the use of mass transit.

Thank you.

Very truly yours,

GARY MULDOON, *Councilmember-at-Large.*

SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT,
Los Angeles, CA, February 20, 1991.

Hon. DANIEL MOYNIHAN,
U.S. Senate,
SR-464 Russell Senate Office Building,
Washington, DC.

Dear Senator Moynihan: The Southern California Rapid Transit District (SCRTD) wishes to express its support for S. 26. The bill will help promote mass transit as an attractive alternative to the automobile. The introduction of S. 26 demonstrates your commitment to public transit.

As you may know, our local Air Quality Management District has instituted Regulation XV which requires one out of every three employees in Los Angeles to carpool, vanpool, or use public transit. In conjunction with Regulation XV, the SCRTD has introduced a Corporate Transit Partnership Program to encourage the business community to provide mass transit support to employees on the same basis as they now provide employee parking. The Program currently has 346 members, 318 of whom are providing their employees with a transit pass subsidy through our Corporate Pass Program.

S. 26 will encourage development of similar programs in other areas. If you have any questions regarding our activities, or wish to suggest specific actions we might take with regard to S. 26, please feel free to contact me or Gary Clark, SCRTD's Manager of Legislative Affairs, at (213) 972-4349.

Sincerely,

ALAN F. PEGG.

COMMUTER TRANSPORTATION SERVICES, INC.,
Los Angeles, CA, March 14, 1991.

Hon. DANIEL P. MOYNIHAN,
U.S. Senate,
SR-464 Russell Senate Office Building,
Washington, DC.

Dear Senator Moynihan: Congratulations on the introduction of S. 26 regarding qualified transportation fringe benefits. Commuter Transportation Services, Inc. (CTS) applauds your efforts to balance the tax treatment of employer-provided commute benefits.

We have begun grass roots advocacy activities among our nearly 2,000 client companies in Southern California, most of which have indicated to us at some point or another that federal tax policy discourages employer and employee participation in rideshare programs.

We believe your bill can turn this discouragement into an open invitation to vanpool or use mass transit. We look forward to working with you toward the enactment of your bill. Please call if we can be of any assistance.

Yours truly,

JIM SIMS, *President.*

WESTCHESTER/LAX TRANSPORTATION MANAGEMENT ASSOCIATION,
Westchester, CA, March 26, 1991.

Hon. DANIEL P. MOYNIHAN,
U.S. Senate,
SR-464 Russell Senate Office Building,
Washington, DC.

Dear Senator Moynihan: On behalf of the membership of this transportation management association, I want to thank you for introducing S. 26 dealing with qualified transportation fringe benefits. Your measure will significantly reinforce our local efforts to encourage the use of vanpools and mass transit. It will have a positive impact on our members' average vehicle ridership results in the way to balances the tax treatment of employer-provided commute benefits.

Please let us know of measures we can take on the local scene to improve chances for enactment of your bill.

Sincerely,

J. RICHARD HANNAN, *Executive Director,*

COUNTY OF ROCKLAND, DEPARTMENT OF PUBLIC TRANSPORTATION,
Pomona, NY, April 5, 1991.

Hon. DANIEL P. MOYNIHAN,
Russel Senate Office Building,
Washington, DC.

Re: S. 26

Dear Senator Moynihan: This is a letter in support of S. 26, the proposal introduced by you with others, including Senator D'Amato, to increase from $15 per month to $60 per month the amount of tax-free transit benefit that an employer may provide to workers. This amendment of the Tax Code will go a long way toward correcting the bias that presently exists in favor of driving an auto to work.

We do not sell transit passes presently because we have found the $15 per month tax-free "ceiling" that presently exists to be a major impediment. If S. 26 is approved, we will be able to institute a plan to sell transit passes to employers because we will have a more attractive product.

Thank you for your consideration of this request.

Very truly yours,

WILLIAM M. CHASE, *Acting Commissioner of Public Transportation.*

UTICA TRANSIT AUTHORITY,
Utica, NY, April 5, 1991.

Hon. DANIEL P. MOYNIHAN,
Russell Senate Office Building,
Washington, DC.

Re: S. 26

Dear Senator Moynihan: The Utica Transit Authority endorses S. 26, the proposal introduced by you and Senator D'Amato, to increase from $15 per month to $60 per month the amount of tax-free transit benefit that an employer may provide to workers. This amendment of the Tax Code will go a long way toward correcting the bias that presently exists in favor of driving an auto to work.

We have been trying to sell monthly transit passes to companies for their workers. We have found the $15 per month tax-free "ceiling" that presently exists to be a major impediment. If S. 26 is approved, we will be able to rejuvenate our plan to sell transit passes to employers because we will have a more attractive product.

Please let us know if we can help or provide more information.

Sincerely,

CARMEN F. ARCURI, *General Manager.*

CENTRAL NEW YORK REGIONAL TRANSPORTATION AUTHORITY,
Syracuse, NY, April 8, 1991.

Hon. DANIEL P. MOYNIHAN,
U.S. Senate,
464 Russell Senate Office Building,
Washington, DC.

Dear Senator Moynihan: We are delighted that you have introduced S. 26, which proposes an increase in the amount of tax-free benefit from $15. per month to $60. per month that an employer may provide its employees. This Tax Code amendment can have long-range, salutary effects upon encouraging, through tangible support, transit usage as a viable commuting alternative.

For the past four years this Authority, through its CENTRO service subsidiaries in Onondaga, Cayuga and Oswego Counties, has offered an Employer Sponsorship Program; to date, eight local employers have ESP! With the passage of S. 26, we are confident that that number will increase dramatically.

Please be assured that we are anxious to assist in the passage of this bill and, to that end, are sending a copy of this letter to all Finance Committee members.

Sincerely,

WARREN H. FRANK, *Executive Director.*

BUS ASSOCIATION OF NEW YORK STATE, INC.,
Albany, NY, April 12, 1991.

Hon. DANIEL P. MOYNIHAN,
Russell Senate Office Building,
Washington, DC.

Re: S. 26

Dear Senator Moynihan: This communication is to indicate the Bus Association's support for S. 26 which would increase the tax benefit to employers which provide mass transit subsidies to their employees from $15 per month to $60.

In previous years, we have indicated our interest to Congress in support of increasing the mass transit subsidy. We cannot agree more with your comments regarding the "irrationality" of current tax policy which appears to be predicated upon maintaining the primacy of the single-occupancy auto in work-related transportation as well as promoting air pollution.

We also have observed that public policy determinations very often seem to lack a rational basis when judged by the impact upon the collective well-being. Nonetheless, we applaud your efforts and suggest this proposal should be part of the nation's energy policy. If the administration supports increased petroleum production and exploration as the main stays of the nation's energy policy, they should embrace mass transit subsidization as well and the tax revenue consequences be damned. If not, then free parking subsidization should be treated as taxable income. Let's get the playing field level!

Sincerely,

P. DAVID BILLET.

May 15, 1991.

Hon. LLOYD BENTSEN, *Chairman,*
Committee on Finance,
U.S. Senate,
Washington, DC.

Dear Mr. Chairman: We, the undersigned, wish to convey our collective support for legislation that would substantially increase the $15.00 monthly limit on tax-free employer-provided benefits for employee mass transit and van-pooling costs.

One member of the Finance Committee, Senator Daniel P. Moynihan, has introduced S. 26 to correct this inequity in the Federal Tax Code. Current law discourages transit use by allowing employers to provide unlimited tax-free parking. At the same time, transit passes worth more than $15.00 per month are wholly taxable fringe benefits.

It is our belief that the Tax Code should be revised to encourage transit use, not only as a means of reducing urban air pollution and congestion, but also as part of the solution to national energy dependency. In fact, there are six energy bills pending in Congress that would increase the transit benefit to between $75.00 and

$100.00 per month. The concept of raising the transit fringe benefit has also been endorsed by the Bush Administration.

We, therefore, respectfully urge you to consider the merits of "transit pass" legislation. Your leadership on this issue will ensure its ultimate success.

DONALD BORUT, *Executive Director, National League of Cities.*
J. THOMAS COCHRAN, *Executive Director, U.S. Conference of Mayors.*
EDWARD FERGUSON, *Acting Executive Director, National Association of Counties.*
JACK R. GILSTRAP, *Executive Vice President, American Public Transit Association.*
RICHARD C. HARTMANN, *Executive Director, National Association of Regional Councils.*

PREPARED STATEMENT OF PAT NELSON

Good morning. My name is Pat Nelson. I'm from Ada County Ridesharing in Boise, Idaho. I'm here today representing the Association for Commuter Transportation (ACT). ACT is a national association whose mission is to make the commute easier, more efficient and less costly. Members include corporations, public agencies, nonprofits, and others that operate or promote carpools, vanpools, buspools, public transit or other commute alternatives programs that aim to reduce traffic congestion, air pollution, and energy waste.

In addition, we are speaking on behalf of the Coalition for Transit NOW, of which ACT is a supporter. Transit NOW is comprised of a broad spectrum of organizations united in their desire for more and better transit.

Some of the many organizations actively supporting an increase in the tax-free limit on employer-provided commute benefits include the:

- American Public Transit Association
- Campaign For New Transportation Priorities
- National Association of Counties
- National Association of Regional Councils
- National Council of State legislatures
- National league of Cities
- U.S. Conference of Mayors

We appear before you today to urge your support for equity in the tax treatment of commute to work fringe benefits. While free or subsidized parking is considered a 'Working condition" fringe benefit, and thus is not subject to income tax, a transit pass worth more than $15 per month is classified as taxable income. In addition, the entire amount of employer-provided vanpool/carpool subsidies is taxed. ACT recognizes the many complications that would be posed by taxing parking. However, we strongly urge this Subcommittee to recommend enactment by the Congress of legislation that would improve the equity between parking and other commute benefits. More specifically, we recommend passage of legislation that would:

(a) increase the current $15 per month limit on the tax-free value of transit passes, to at least $60 per month;
(b) exempt employer-subsidized car/van/buspools from being taxed as fringe benefits;
(c) remove the "cliff" provision which renders the entire amount of a transit pass taxable when the value exceeds the nontaxable limit; and

Federal tax law promotes driving alone. Yet, Federal clean air, energy and transportation policies all call for the encouragement of high-occupancy vehicle transportation modes. This glitch in the tax code is completely counterproductive!

It is particularly striking that employer-provided vanpool benefits are taxed. Vanpooling grew out of the energy crises of the 1970s. It was started by employers who, fearing long gas lines and low fuel supplies would inhibit their employees' consistent attendance at work, wanted to make sure their workers had a reliable, energy efficient commute alternative. By 1980, 28,000 vanpools (with over six occupants

each), in areas of over one million people, got people to work while saving fuel, reducing traffic congestion and cutting emissions.

[Source: Commuting In America—A National Report on Commuting Patterns and Trends; Eno Foundation for Transportation, Inc., Westport, CT. Edited by Alan E. Pisarski. Based on data from 1960-80 U.S. Census.]

The Internal Revenue Service will be holding a hearing July 1 to consider raising the nontaxable limit on transit passes to $21 per month. This increase, while a constructive step, would not come close to the level needed.

The change we seek in the tax on commute benefits is not an abstract point of public policy. It affects real people and real companies. Around Boise and Sun Valley, Idaho, a number of employers subsidize commuter benefits for their employees. let me give you a few examples.

- Simplot Diversified Products owns and operates two employee vanpools. They charge employees $35 a month for the 60 mile round-trip commute, then use the vans daily in the company motor pool.
- Ada Planning Association (APA—the metropolitan planning organization for the Boise area) provides a $15 payment to employees who use the Boise bus system. Vanpoolers were eligible for the program until APA was made aware that the tax-free subsidy could only be made available to transit users. APA would reinstate vanpoolers if the law were changed.
- Boise City provides the subsidy for 50 of its employees. The current bus pass costs $16 per month. Employees pay $12 a year to keep the city in compliance with the law. Several city employees do not quality for the subsidy because the vehicle they use is a vanpool not operated by the transit system.
- An insurance company in the Boise area provides employees an $18 parking subsidy, but allows the funds to be used to purchase a $16 bus pass, or vanpool subsidy. The company's Personnel office was unaware of the law, but does include the $18 as part of the employees' income.
- Elkhorn Resort in Sun Valley operated one commuter van for its employees commuting from an outlying community. The vanpool was a fringe benefit that was completely paid for by the company in order to recruit these workers. The vanpool is not being operated at this time because of scheduling difficulties. The Elkhorn representative with whom I spoke felt these workers would not have become employees if this benefit was not offered.
- Sun Valley Company operates one 15 passenger van for employees living in the Twin Falls, Idaho area—a 75 mile one-way trip. Sun Valley Co. pays the entire cost of the vanpool service and uses the vehicle during the day for business purposes. The company also provided bus service during the winter months for employees, but did charge a small fare because of the increased cost of operation. They plan to continue the bus operation for the next winter season. Sun Valley's personnel director was not aware of the need to tax employees on the transportation benefit and stated that it *"added insult to injury to ask these people to spend three hours a day to get to work in Sun Valley and then have to pay tax on the trip."* He felt the transportation benefit was one reason these people were willing to work in Sun Valley. Most of these people were without jobs and had no prospects of gaining employment in the communities where they lived. They are willing to work, but could not afford the housing costs in the Sun Valley area. The company was willing to provide the transportation in order to recruit quality employees.

Other examples can be found in many different rural, suburban and urban areas of the nation. Tremendous potential exists for more employers to participate in employee commute assistance programs, were public policy changed to support their efforts.

Taxing employer-provided transportation assistance means hitting working people right in the pocket book—something they *really* don't need in the middle of a recession. Working people are very willing to help save energy and clean up the air—but they don't want to be *penalized* for doing so! And employers have proven their Willingness to assist employees with commute options—but they don't want to hurt the very employees they're trying to help by making them subject to additional taxes.

Employers also have to reckon with the requirements of the Clean Air Act, which says employers of 100 or more employees located in severe or extreme nonattainment areas must increase their employees' vehicle occupancy by 25 percent above the area average. We've heard of companies in California paying employees $60 a month just to get out of their cars!

People aren't stupid. If government rhetoric says "Use transit and ridesharing!" but tax policy says "Drive your car and park for free!" people will drive their cars. A pat on the head just doesn't stand up against a dollar in the pocket.

That's why we need to "level the playing field" between the tax benefits offered to those who drive alone versus the benefits available to commuters using transit, vanpooling or carpooling.

The sooner Congress can act on this problem, the sooner more of America's employers and workers can team-up for transit and ridesharing. And teamwork is the key to cleaning the air, conserving energy, and cutting traffic congestion. *We just hope the Federal government will work with us on the same team!* Thank you for this opportunity to talk with you today.

PREPARED STATEMENT OF SENATOR BOB PACKWOOD

I want to thank the Chairman for holding these hearings today and tomorrow on energy tax proposals.

I have long been interested in ways to encourage the development of, and the investment in, alternative energy sources and to promote energy conservation. Over the years, I have supported tax incentives for investment in alternative energy facilities and for home improvements designed to conserve energy.

For Oregon and the Northwest, alternative energy and energy conservation incentives are more important than ever. This is because we are on the verge of an energy crisis. Hydroelectric power, one of our principal sources of energy, is endangering the livelihood of the salmon. Right now, it looks like the Northwest will have to reduce the use of hydroelectric power so we can protect the salmon from becoming an endangered species. We desperately need innovative alternative energy sources and incentives for energy conservation.

BUSINESS ENERGY TAX CREDIT

An effective way to encourage investment in alternative energy has been the business energy tax credit for solar and geothermal facilities. Solar and geothermal are environmentally sound, efficient forms of energy production. The city of Klamath Falls, Oregon, for example, supplies several municipal and commercial buildings with heat and power from a geothermal plant. Geothermal works for Klamath Falls and it can work for other communities as well.

At a minimum, the business energy tax credit, which is scheduled to expire at the end of this year, should be extended. Senator Daschle and I have introduced a bill to extend it for five years. In addition, serious consideration should be given to expanding this tax credit to cover other types of renewable alternative energy sources.

MASS TRANSIT PASSES

A large portion of our national energy is consumed by automobile commuters. Many urban areas, such as my home town, Portland, suffer from severe gridlock at rush hour. By encouraging commuters to use mass transit, we can go a long way to conserve energy and reducing gridlock.

Under the tax code, employers can provide their employees with a small amount of mass transit passes on a tax-free basis. The tax-free amount was $15 a month until recently when the Treasury Department increased it to $21 a month to take into account inflation.

But, mass transit costs more than $1 a day. For this reason, Senator Moynihan and I have introduced legislation to raise the tax-free transit pass amount to $60 a month. I hope we can act on our proposal this year.

ENERGY CONSERVATION PAYMENTS BY UTILITIES

Many utilities pay part of the cost of energy conservation measures taken by their customers. For example, some utilities pay part of the cost of replacing an old water heater with a new energy efficient one as a way to encourage homeowners to conserve energy.

Under the tax law, the customer is not taxed on an energy conservation payment if it is credited against the customer's utility bill. However, the tax law is unclear on how cash payments are taxed. In 1989, the Internal Revenue Service ruled that the customer must pay tax on energy conservation payments made in cash. This makes no sense and would serve to undermine the purpose of the payment.

Senator Symms has introduced a bill, which I have cosponsored, to make sure that utility customers are not taxed on energy conservation reimbursements. This is a much needed clarification of the tax code.

All of the proposals I have mentioned share a common goal: to bring more conservation to our daily lives and to encourage the use of energy that is clean, renewable, and good for our environment. I am delighted that many of my colleagues on the Finance Committee support this goal and hope we can act on many of these tax proposals this year.

PREPARED STATEMENT OF SCOTT PARSLEY

My name is Scott Parsley, and I am the Assistant General Manager for Member Services for East River Electric Power Cooperative. I am here today to voice strong support of S. 922 which will clarify that the use of rebates by utilities as a means to encourage energy conservation will not be subject to Federal income taxation.

BACKGROUND

East River Electric Power Cooperative, Inc. (East River) is a wholesale generating and transmission (G&T) cooperative located in Madison, South Dakota. East River provides wholesale power to its members, 25 rural electric distribution cooperatives and one municipal electric system in eastern South Dakota and western Minnesota. These member systems in turn, provide retail electric service to approximately 65,000 rural accounts affecting over 250,000 persons in a 36,000 square mile area. East River purchases its members' power supply requirements from two sources, the Western Area Power Administration (WAPA), a Federal Power Marketing Administration, and Basin Electric Power Cooperative located in Bismarck, North Dakota. Each of these power suppliers provides 50% of the member systems' power supply needs. East River owns and operates a power delivery system consisting of 2,500 miles of high voltage transmission line and 200 substations to deliver this power to its 26 member systems.

LOAD MANAGEMENT

After several years of study, East River and its member systems installed a system-wide, low frequency load management system in 1984. The load management system, which covers one of the largest geographic areas of any such system in the United States, allows East River to directly control end-consumer heating, air conditioning, water heating, irrigation, demand limiters, grain dryers and industrial loads, directly from its Operations Center located in Madison.

The load management system was installed in order to moderate the "peak" electric use on the system and encourage the use of "off-peak" electric energy, thereby improving the system load factor, which is a measure of overall efficiency of our electric resources. As a result of this effort, *over 70,000 kilowatts or 20% of the system peak demand is reduced* in the winter months. Historically, East River achieves its highest annual peak use during the winter season. *The annual system load factor,* a measurement of the efficiency level to which the system is being used, *has increased from 44% in 1984 to 54% in 1990. Energy being used during "off-peak" periods now accounts for approximately 100 million kilowatt hours per year or about 7% of total energy sales.*

These two system impacts resulting from the load management program *have yielded $33,000,000 in avoided power costs since 1984.* These costs represent savings which have been *passed on to the end-consumer in the form of lower rates.*

CONSERVATION

Since the early 1960s, East River and its members have been actively engaged in energy conservation programs. East River and its member systems have provided residential energy audits and low-interest weatherization loans to retail consumers to encourage maximum benefit from the electric resources available.

In 1978, Congress passed The National Energy Conservation Policy Act. This Act called for conservation measures, including weatherization, load management and replacement of inefficient heating equipment, in both residential and commercial applications. In 1985, WAPA added a new requirement to its wholesale power supply contracts mandating formal conservation and renewable energy efforts. This contract provision requires WAPA customers such as East River to implement energy conservation programs and provide WAPA with annual compliance reports.

We are also aware that the National Energy Strategy released by the Department of Energy in December, 1990 identified improved energy efficiency and conservation as goals which enjoy strong public support and are important elements to this country's future energy security.

The load management system has provided the ability for East River and its member systems to achieve conservation and operating efficiency levels beyond what is required by either the 1978 National Energy Conservation Policy Act or the 1985 WAPA Conservation and Renewable Energy Program.

REBATES

The success that East River and its member systems have achieved with the load management program works *ONLY* if the retail consumer is willing to install heating, cooling, water heating, and other types of electrical equipment that will allow load control without unreasonable consumer discomfort. Incentive retail rates offer consumer savings in operating costs as a result of having load control applied. However, *initial consumer participation in the load management program often requires a new investment for the consumer,* who purchases and installs equipment that allows load management without sacrificing the comfort and quality of life that we have all come to expect.

For example, an all-electric home heated with baseboard heat does not lend itself to load management without the installation of some other type of heat source to be used when the baseboard heat is under temporary control by the utility. The option we have offered to these consumers is the installation of electric thermal heat storage devices that store heat (energy) in dense ceramic bricks heated during "off-peak" period and withdrawn from the bricks during "peak" electric use periods when the electricity supply to the bricks is temporarily controlled. The cost of these energy storage units is of sufficient price so that the payback based solely on reduced operating costs is quite lengthy.

By accepting a rebate on the purchase price of the equipment from the cooperative, the consumer is able to reduce their cash outlay and recover their costs over a shorter period of time based on operating cost savings. When the cooperative power supplier reduces its operating costs by reducing peak demand, the cooperative passes those savings along in the form of lower rates, and the consumer is provided both an "up-front" incentive in the form of a cash rebate to install the device along with ongoing reduced operating costs and lower electric rates.

A second example is in the area of water heating. Many of the water heating systems that were in use when East River began its load management program were purchased and installed before the new generation of higher efficiency units were available. While these water heaters can be controlled by load management, they do not offer optimum conservation and peak demand reduction opportunities because of the additional energy required to reheat the water when units are restored to regular operation. In addition older, less efficient equipment requires longer recovery times than newer high efficient water heaters.

Rebates are very important to encourage consumers to replace older, low efficiency water heaters with new high efficient units in order to achieve improved energy efficiency. Without the use of rebates there is little incentive for consumers to invest their money in the replacement of an older functioning water heater solely to achieve improved energy conservation.

In order to achieve the significant reductions in peak demand and improvements in operating efficiencies and overall energy conservation, East River, in cooperation with its member systems, has provided approximately $10,600,000 in the form of 24,500 rebates to retail consumers from 1984 to June, 1991. East River member systems have added approximately $1,500,000 to the East River amount for *total rebates during the past six and one-half years of approximately $12,100,000,* resulting in an *average rebate of $494 for each consumer participating* in the program. East River and its member systems have also provided over *$2,000,000 in the form of 1,200 consumer loans* to purchase new state of the art heating, cooling, manufacturing, irrigation and grain drying equipment that can be controlled by the load management system.

Rebates are also being targeted to encourage installation of state of the art super-efficient air-to-air and ground-source heat pump equipment. During 1990, rebates were an essential part of the installation of 250 of these new units. These units will offer dramatic conservation savings into the future.

As a result of an aggressive marketing program including both rebates and low interest loans, *East River and its member systems and the end consumers have had a tremendous impact on reducing peak demand and achieving energy conservation.*

CONCLUSION

Based on our experience, we reached the following conclusions:

- East River and its member systems have invested *$12,100,000 in rebates over the past six and one-half years* to achieve *70,000 kilowatts of controllable demand,* providing for 100 million kilowatt hours of "off-peak" energy, and saving to consumers of *over $33,000,000 in power costs.* The use of rebates has had a significant effect on these peak reductions and energy conservation results.
- Rebates are an important ingredient to a successful conservation and load management program.
- Subjecting rebates to income tax as prescribed by the Internal Revenue Service (IRS) technical advice memorandum is counter-productive and a contradiction to both the 1978 National Energy Conservation Policy Act and the 1985 WAPA Conservation and Renewable Energy Program.
- Rebates will continue to be an important tool for utilities to encourage consumers to use the most energy efficient equipment available.
- New electric equipment available for space heating and water heating which is the most energy efficient equipment is generally more expensive than less efficient equipment.
- The average level of utility rebates is small. If forced to report these rebates as income, both utilities and consumers will be subjected to a significant new administrative burden. This "paper chase" will yield few if any tax revenues while imposing significant costs to administer, while reducing energy conservation results.
- Rebates are successfully used in other industries as a marketing technique—the Federal government should not single out utility rebates which are targeted to improve energy efficiency for taxation.

If we are to achieve conservation as mandated by federal law and work toward energy independence in this country, we believe exempting rebates from federal taxation is essential.

[SUBMITTED BY SENATOR JOHN D. ROCKEFELLER IV]

FORD MOTOR CO.,
Dearborn, MI, June 10, 1991.

Dear Senator Rockefeller: Thank you for giving Ford the opportunity to comment on your legislative proposal, S. 1178, which would provide incentives for the purchase of alternative-fueled vehicles and the installation of vehicle refueling equipment.

Consumers likely will be hesitant to purchase these vehicles because of concerns about driving range, fuel availability and vehicle reliability. Similarly, fuel distributors will be reluctant to invest in refueling equipment until sufficient market demand has been established. For these reasons, we believe that incentives are essential if we hope to achieve market acceptance of alternative-fuels technologies.

Ford commends the leadership role you have played in encouraging the development of alternative-fuels vehicles. Your recent proposal, S. 1178, takes the next logical step by encouraging the purchase and use of these vehicles.

While we strongly support this initiative, we believe the bill could be made even stronger. Based on our estimates of the incremental cost of these vehicles and preliminary market research, we believe that greater incentives may be necessary to ensure widespread acceptance of this technology. We also believe that extending incentives to the purchase of electric vehicles and recharging facilities is appropriate.

We look forward to working with you on this and other issues.

Sincerely,

H.O. PETRAUSKAS.

PREPARED STATEMENT OF JEFFREY M. SEISLER

INTRODUCTION

The Natural Gas Vehicle Coalition (the Coalition) is a broad-based national organization dedicated to promoting and stimulating the use of natural gas as a vehicle fuel. The Coalition's approximately 125 members include natural gas distribution companies, pipelines, automotive equipment and vehicle manufacturers, natural gas

vehicle (NGV) equipment suppliers, NGV users, educational institutions and other organizations interested in commercializing natural gas as a vehicle fuel.

The American Gas Association (A.G.A.) is a national trade association comprising some 250 natural gas distribution and transmission companies. These companies account for approximately 85 percent of the nation's total annual gas utility sales, serving nearly 174 million natural gas consumers throughout the United States.

The Coalition supports the development and implementation of federal and state policies that encourage the use of natural gas for cars, trucks, buses, and other vehicles. The Coalition also supports new technologies that advance or assist the growth and commercialization of the natural gas vehicle market and the NGV industry. A.G.A. concurs in these goals.

The Coalition and A.G.A. believe that increased reliance on alternative fuels should have dual public purposes: improved air quality and increased domestic energy security. To serve these goals, federal support of alternative fuels should be broad enough to encourage the development and market penetration of any alternative fuel that can help to meet the goals. We recommend to this Committee that it encourage the development of alternative fuels that include both renewable fuels and other alternative fuels, provided the dual public purposes are met.

The Alternative Fuels Incentive Act of 1991 (S. 1178) would help to achieve these public purposes, and the Coalition and A.G.A. endorse the bill. We commend Senator Rockefeller and the original co-sponsors of the bill, Sens. Danforth, Boren, D'Amato, Bingaman, and Nickles, for their introduction of a bill that would encourage alternative fuel development virtually across the board. The bill would provide one of the most powerful incentives available to the federal government—tax incentives—to develop the infrastructure for and place in service vehicles that run on natural gas, liquefied petroleum gas, and any fuel that is at least 85 percent methanol, ethanol, other alcohols, or ether.

DESCRIPTION OF S. 1178

S. 1178 would allow the capital cost of alternative fuel components on vehicles and alternative fuel refueling facilities to be expensed, or deducted in the same year in which the property is placed in service, up to certain limits. The tax benefit would be available to both businesses and individuals in the case of vehicle property and to businesses in the case of refueling facility property. There are caps on expensable property as follows: $2,000 for automobiles and trucks up to 10,000 lbs. gross vehicle weight rating, $5,000 for trucks over 10,000 lbs. and up to 26,000 lbs., $50,000 for trucks above 26,000 lbs. and buses, and $75,000 for refueling facility property.

The bill also ensures that state and local governments will have an incentive to use alternative fuel vehicles. These government entities would be eligible for equivalent payments from the federal government as if they were taxpayers expensing eligible property.

The incentives of S. 1178 would be available for property placed in service between September 30, 1992 and October 1, 2002.

RATIONALE FOR ENDORSING S. 1178

There are typically four precursors to developing a successful alternative fuels policy, as described below.

• Economics—The owner of equipment must be able to achieve a payback of his costs in a reasonable time. In the case of alternative fuels, this means that there must be a sufficient price spread between the alternative fuel and the traditional fuel. Thirty cents difference allows high fuel consuming vehicles to achieve economic payback in a reasonable timeframe (2-3 years); a 50 cents differential typically provides a payback in under two years.

• Availability of Equipment—Today there is a host of light duty vehicle natural gas retrofit equipment available that meets and exceeds U.S. emission standards. General Motors has engaged in a program to deliver at least 1,000 3/4 ton pickup trucks into the market this year. Ford and Chrysler are evaluating their positions toward alternative fuels, and natural gas in particular. Cummins Engine Co. and Hercules both are producing dedicated heavy duty engines (formerly diesel) that can meet or exceed EPA 1994 standards. Other major engine companies, such as Caterpillar, Mack Truck, and Detroit Diesel, are testing their equipment on natural gas. Two leading companies producing metropolitan buses—both members of the Coalition—now make natural gas-equipped vehicles for sale.

• Utility Support—Fuel suppliers must get active and become aggressive in providing fuel to customers in the form it is consumed for NGVs-compressed. The growth of the Coalition is an indication of increased utility activity relative to

NGVs. Some of the most aggressive gas utility companies around the country are beginning to develop the infrastructure necessary for NGVs to penetrate the vehicle transportation market.

• Government Support—A commitment by federal, state and local government has been required in any country where alternative fuels have achieved successful market introduction and penetration.

S. 1178 provides incentives for all four of these precursors. It allows an owner of the eligible property to improve his payback period by rapid recovery of up-front capital costs. Combined with any fuel differential that exists for an alternative fuel, S. 1178 could provide a major economic incentive to use alternative fuels.

The availability of equipment would be improved because the bill would spur demand for eligible equipment. Manufacturers would respond to the increased demand by supplying equipment that is eligible for the tax benefit.

Utility support for the necessary refueling infrastructure would increase, and more utilities would become aggressive, because the tax benefit will stimulate demand for refueling stations and allow rapid recovery of a portion of up-front capital costs.

There is no question that the bill would provide significant government support. The Clean Air Act Amendments of 1990, and probably the national energy strategy, will require certain vehicle operators to use alternative fuel vehicles. These government actions necessarily impose some requirements on vehicle operators to achieve the dual government purposes of improved air quality and increased energy security. S. 1178 would represent the federal government's willingness to support attainment of the dual policy goals by offering government assistance in improving the economics of affected vehicle owners. This "parallel track" to the objectives of the Clean Air Act supports the clean fuel fleet programs.

NGVs: an Economic, Safe, and Energy Efficient Choice

NGVs offer an excellent opportunity to provide an economic, safe, and energy efficient solution to air quality and energy security concerns.

• **Natural gas as & vehicle fuel is economic.** An equivalent gallon of natural gas sells for between 42 cents and 80 cents. On the average, compressed natural gas retails for about 62 cents an equivalent gallon.

• **NGVs are environmentally benign.** In light duty engines, NGVs produce about 85% less reactive hydrocarbons (the precursor to smog and ozone) than gasoline engines; in excess of 90% less carbon monoxide; and approximately 18 to 30% less greenhouse gases—carbon dioxide and methane. Nitrogen oxide (NOx) reductions have also been achieved, and light duty NGVs have been shown in testing in California and at the EPA laboratories in Ann Arbor to be in compliance with and, in many cases, well below current standards. NOx emissions in heavy duty natural gas engines are showing substantial reductions over traditional diesel fuel.

Developments in heavy duty engines show dramatic reductions in emissions compared to diesel and gasoline. Natural gas contains no particulate matter, and lean burn engines being developed by Cummins Engine Company and Detroit Diesel Corporation, as well as diesel retrofit equipment now under development at Southwest Research Institute (San Antonio, Texas), indicates that natural gas may be the only fuel available to meet stringent particulate emissions levels without either expensive tailpipe particulate control technologies (which today do not exist in market-ready condition) or catalysts to reduce formaldehyde emissions.

• **Natural gas is an abundant domestic fuel.** 93% of the gas consumed in the U.S. is produced domestically. The balance comes mostly from Canada; hence the expanded use of natural gas will decrease U.S. reliance on oil from unreliable foreign sources. As for supply, according to the U.S. Department of Energy, there is about 65 years of natural gas available at today's prices and a 200 year supply in the U.S., considering all readily accessible and more exotic sources. Ten million vehicles converted to natural gas would consume approximately one trillion cubic feet (Tcf) of gas, or about six percent of today's national gas consumption.

• **Natural gas as a vehicle fuel is safer than (or as safe as) any existing or alternative fuel on the market.** Natural gas has a narrow flammability range (between five and 15 percent natural gas to oxygen) and is lighter than air, so it evacuates to the atmosphere in case of a leak. The vehicle fuel storage systems have been subjected to severe abuse testing (dynamite, bonfire, gunshot, and car crashes) that indicate they are safer than any other fuel storage systems. A recent testimony to NGV safety is the New York City Triborough Bridge and Tunnel Authority's change of regulation to allow NGVs to travel in tunnels and the undercarriage of dual roadway bridges.

• **The expanded use of NGVs promotes energy efficiency and conservation.** NGVs present an abundant non-seasonal demand that contributes to base-load capacity. Much of the refueling of NGVs can be done in off-peak hours.

CONCLUSION

Placing NGVs on the road in this country can help to achieve energy security and environmental goals sought by the federal government. The Coalition and A.G.A. recommend that an alternative fuels policy include incentives that promote the use of NGVs as part of an overall energy and environmental strategy.

We endorse S. 1178 as a bill that will facilitate the four precursors of an effective alternative fuels policy. The bill would improve alternative fuel vehicle owner economics, induce the availability of alternative fuel vehicle equipment, encourage utility company support of a refueling infrastructure, and provide solid government support of an alternative fuels policy at the federal, state, and local levels. We encourage this Committee to support S. 1178 as it considers tax incentives for renewable fuels.

PREPARED STATEMENT OF JIM SIMS

Commuter Transportation Services, Inc., popularly known as Commuter Computer, is the nation's oldest and largest organization dedicated to promoting transportation demand management—or TDM—as an important element transportation policy. We are a private, nonprofit organization funded primarily by California Department of Transportation, and the transportation commissions in the five counties we serve—Los Angeles, Orange, Riverside, San Bernardino and Ventura. The majority of the members of our Board of Directors are senior executives from the private sector and we work closely with over 3,700 major public and private sector employment sites to assist in the implementation of TDM, which is any policy or program that reduces the need to travel especially during peak congestion hours, or increases the use of such alternatives as walking, carpooling, vanpooling and mass transit.

The statistics that we've all heard—billions of dollars are lost by business each year due to traffic delays—confirm what we experience daily. A survey conducted for the Southern California Rapid Transit district found that over 80 percent of Los Angeles area employers believe traffic congestion affects their companies and nearly two-thirds believe traffic affects employee absenteeism and product delivery. And our infamous traffic congestion doesn't help recruiting efforts. In addition to requiring clean air, we believe government can do more to enhance private sector and individual efforts.

Southern California exemplifies the attachment of many Americans to their cars. Residents of our region put more than 94 billion miles on their vehicles traveling within the state in 1987. If every resident in Southern California paid $2 for each mile driven, the amount collected would eliminate the national deficit. At least as valuable is the time lost sitting in traffic—more than 628,000 hours a day which adds to over 150 million hours a year. However, we believe that commuter behavior is based largely on rational comparisons of time and cost.

Federal tax policy exempts the value of employer-provided worksite parking, which is easily worth $300 a month in many urban employment centers. However, a mass transit subsidy is completely taxable once it exceeds $15 per month. It is easy to see why many commuters drive alone to work because to do so merits better tax treatment.

Parking is heavily subsidized in highly congested areas where parking is scarce and highly prized, and in suburban areas where parking is abundant and cheap. Most major employers provide free or subsidized parking to their employees, thus giving preferential treatment to the commute choice—driving alone—that increases traffic congestion during peak commuting hours, increases harmful vehicle emissions, which is the largest single source of smog in Southern California and increases wasteful fuel consumption. An above ground parking space costs between $10,000 and $15,000 to construct. Underground, a parking space likely costs twice as much to build.

Continuing to classify employer-provided worksite parking as a working condition fringe benefit misses the mark. Parking management strategies are perhaps the most effective in positively impacting mode choice. Consider the following:

1. Preferential Parking

Generally associated with rank and seniority, prime parking spaces can instead be reserved for car and vanpools.

2. Parking Pricing

In urban areas where parking demand exceeds supply and transit access is adequate, a shift from free parking to market rate can decrease solo driving by approximately 20 percent. Parking pricing is a market incentive strategy which uses price to change the mode people choose to commute. Employers can manipulate the price of parking to encourage carpool and vanpool formation.

3. Commute Allowance

Perhaps the most versatile and effective strategy in changing commute behavior is through an employer provided commute allowance, which is a flat dollar amount given to each and every employee to be used to purchase a transit pass, a vanpool subscription, parking, or simply pocketed. Research shows that when cash is offered in lieu of parking, as many as 30 percent of employees will take the cash. Our free market economy has made America the envy of the world. Allowing employers to offer a commute allowance as a tax-free working condition fringe benefit will allow the same economic principles to apply to the commute.

Another plus of a commute allowance is that commute benefits are provided in an equitable and consistent manner. However, at present commute allowances are taxable benefit, while parking is a tax-exempt benefit.

CTS does not advocate taxing parking benefits and we fully understand the political and fiscal realities that come into play. However, we do encourage Congress to provide for the suitable treatment of commute benefits that promote ridesharing. The best effort in this regard, ad one which we strongly support, is S. 26, sponsored by Senator Daniel P. Moynihan. S. 26 would level the playing field in terms of bow various commute benefits are treated by the federal tax code.

This bill is also in harmony with the President's public-private partnership message. Through it, the federal government will not only support clean air and energy mandates, but establish a framework for change. Air quality and energy strategies should be directed by Congress, not by the IRS somewhat by default. In a game where smog and gridlock have been the results, it is time to change the rules. Only Congress can change the tax code, and I urge your support of our efforts. Thank you.

PREPARED STATEMENT OF SCOTT SKLAR

INTRODUCTION

The Solar Energy Industries Association (SEIA), the national trade organization of the photovoltaic and solar thermal manufacturers and component suppliers, urges the U.S. Congress to extend the solar business energy tax credits for five years, through December 31, 1996, as provided by S. 141. SEIA also strongly endorses S. 1157, which would permit the utilization of the energy tax credits against both the regular tax and the alternative minimum tax. We have heard from our members that the harsh impact of the alternative minimum tax has prevented the utilization of the solar tax credit in many instances. And we believe that this is an unintended interaction of the Alternative Minimum Tax (AMT) and the renewable tax credits, hampering execution of the stated legislative purpose of promoting renewable energy. According, SEIA urges enactment of S. 1157 which would permit full utilization of the credits. Certainly, the renewable energy industry should at least be accorded the same alternative minimum tax treatment granted the oil and gas industry. With regard to the latter, the Omnibus Reconciliation Act of 1990 provided some reductions to the base upon which the alternative minimum tax is calculated, thus effectively reducing the tax. At a minimum, solar energy should be permitted comparable adjustments, the most important of which would be the utilization of the cost recovery method applied for regular tax purposes in computing the AMT base.

The existing federal incentive has been an effective market primer to facilitate over 350 megawatts of solar thermal power, thousands of commercial solar water heating and solar industrial process heat installations, and selective use of photovoltaics, nationwide. Over 250 solar manufacturers, project engineering firms, and systems houses are relying on this federal market initiative as the only way to effectively commercialize solar technologies in the early 1990's. The formula of tax credits as market initiatives has been effectively proven in solar thermal power applications, and solar water heating applications and will begin to do so in photovoltaic applications. However, if the U.S. Congress fails to extend these tax incentives, the United States risks the probability of importing all our solar technologies from our

international competitors within a decade. Currently Japan and many of our other international competitors are using tax and other market incentives to build their domestic solar energy industries.

The choice is ours—whether to further commercialize solar energy and maintain our technological lead—or whether to abdicate our technological leadership to our international competitors. We have at our command an environmentally benign technology that can displace foreign oil and improve our air quality. Extension of the solar business energy tax credit at a minimal cost will create a billion dollar industry with thousands of jobs, if the solar industry is allowed to mature.

ENVIRONMENTAL BENEFITS

In an era of air pollution, oil spills, global warming and other environmental concerns, solar energy is a clean, positive and environmentally compatible alternative to fossil fuels. For example, replacing fossil fuel generation with solar electric generation results in significant emissions reductions, even compared to the cleanest fossil fuel options.

A solar thermal electric power facility, for instance, which uses natural gas as a back-up fuel, emits approximately one-quarter as carbon dioxide as the cleanest conventional alternative, an all-natural gas power plant. Nitrous oxide emissions at solar thermal power plants are one third the emissions of a state-of-the-art gas facility. Solar water heating can cost effectively displace ozone (in dollars per ton) more than almost any other option other than car-pooling. Photovoltaics can displace remote diesel generation, reducing a major contributor to air pollution.

The public benefits of these reductions in emissions far exceed the cost of the solar tax credit. The value of the tax credit over the life of a facility is approximately one half per kilowatt hour. In contrast, measures now being required in southern California to comply with clean air standards will involve costs twice that amount, just to reduce emissions of a single pollutant, nitrous oxides.

Under the Acid Rain provisions of the Clean Air Act, a special allowance reserve can be accessed from 1992-2001 by utilities which use solar and renewable energy to displace sulfur emissions. In addition to reducing the total amount of air emissions, solar facilities have the added benefit of reducing emissions during daylight hours—the period of time when the formation of photochemical smog is most severe and when reductions in emissions are most significant.

HISTORY OF AND RESPONSE TO THE CREDIT

Title I of Energy Tax Act (P.L. 95-610), established the ten percent solar business investment credit which was to expire on December 31, 1982. At the time, there were virtually no photovoltaic or solar thermal power installations, just a few hundred commercial solar water heating and industrial process heat installations.

The Windfall Profits Act of 1980 (P.L. 96-223) extended the solar business tax credit through December 31, 1905 at the 15 percent level. In the Tax Reform Act of 1906, the solar business commercial credits were extended retroactively from January 1, 1906 through December 31, 1900 at the 10 percent level. Commercial sales (excluding residential and export sales) of photovoltaics, solar water heating, and solar thermal power were over $300 million in 1990.

In the 100th Congress, an amendment was introduced on the Senate floor as part of the Technical Corrections Act of 1900 which extended the 10 percent solar business energy credits through December 31, 1989 and in 1990 the credit was extended through September 30, 1990. Another one year extension was passed in 1991 with an expiration date of December 31, 1991.

These short-term extensions at the eleventh hour adversely affect the development of the solar energy industry in the United States. Potential loss of the credits is deterring private investment until the issue is resolved by the Congress. The Solar Energy Industries Association (SEIA) request for a permanent extension will lower the "new" technology risk while still allowing market forces to determine the most cost effective use of solar.

While the tax incentives are not large enough to distort the market forces, they do compensate the investment risk marginally, which is adequate at this point in our development to incentivize projects. Without continued solar research and development, and a favorable regulatory environment, the tax incentives alone will not do the job. However, maintaining tax incentives is essential if the United States is to commercialize the solar technologies.

STATE OF THE SOLAR INDUSTRY

Photovoltaics, the conversion of sunlight directly to electricity, has come down ten-fold in costs in the last decade while efficiency has increased four-fold. Photovoltaic sales topped $250 million in 1990 with 60 percent of the U.S. photovoltaic equipment exported to the developing world to provide power for medical refrigerators, water pumping and irrigation, communications, and lighting. Many of the utilities in the United States are looking towards photovoltaics to provide remote power in the utility service area for sign and street lighting and for line-voltage augmentation, substation upgrades, and peak power.

Solar water heating is the most common solar technology in the market place. Over one million homes in the United States use solar water heaters now displacing over 1000 megawatts of electricity, which is equal to one nuclear power plant. And while that sounds like a large number of solar applications over the last fifteen years, the City of Tokyo alone has an equal number of solar water heaters. Almost all of the U.S. solar water heaters are rated by the Solar Rating & Certification Corporation (SRCC), a non-profit organization established by the solar industry and state government energy officials. SRCC has developed a solar system certification that meets the HUD Minimum Property Technical Standards. In 1900, SEIA/ASHRAE with support of the U.S. Department of Energy has published a commercial-scale design manual which draws from over ten years experience with the industry and federal building applications, to show the best way to design large-scale, cost-effective, commercial solar projects.

Solar thermal power, which concentrates sunlight to create steam, which in turn can be used to generate electricity. As stated earlier is this testimony, the United States has in service the world's largest solar thermal power facilities, generating over 350 megawatts of utility-grade electricity in California producing 8 cents per kilowatt hour for peak power.

Several large scale solar thermal industrial process heat and preheat applications occurred in 1991. An extension of the solar business energy tax incentives at the current 10 percent level will insure this market penetration continues.

NATIONAL ENERGY STRATEGY PRODUCTION CREDIT

Clearly, the energy investment tax credit has been the most important incentive in the development of solar technology. Without the credit, the industry cannot remain competitive. Accordingly, we support a permanent or multi-year extension of the solar energy investment tax credits.

Some alternatives to the existing renewable investment tax credits have been proposed, the most prominent of which is a ten year, 2.5 cent per kilowatt hour production tax credit. The production tax credit concept evolved at the Department of Energy during the formulation of the Administration's National Energy Strategy (NES). While it did not survive the final draft of the NES, the production tax credit has been included in various legislative proposals, including the three bills cited below. While a production tax credit has some attraction, it should not be considered as a substitute for the investment tax credit. If that is not feasible, the production tax credit, with the election to be made by the taxpayer. This is the regime set forth in recent bills offered in both the House (H.R. 1543) and Senate (S. 466, S. 661, S. 741 and S. 743).

We applaud DOE for taking the time to make a comprehensive review of the nation's energy strategy and expending the considerable level of effort which went into the assessment of ways to offset the market bias that fuel expensing provides for fossil energy applications. The problem as we see it is that, at least in the solar area, the production as opposed to investment credit is workable only for technologies that produce electricity exclusively. Many applications of solar technology—such as hot water heating and solar industrial process heating—do not produce electricity and hence would not be eligible for a production credit based exclusively on electrical output, even though these non-generating applications displace significant amounts of oil, gas and electricity (more than 1,366 megawatts nationwide). Moreover, other solar applications that produce electricity have higher up-front costs than conventional energy because they are, in effect, paying for their fuel in advance.

For example, a utility-scale solar thermal electric generation project requires a multi-million dollar investment but yields the equivalent of 15 million barrels of oil reserves to be used over the succeeding 30 years. In essence, building a solar field amounts to paying in advance for a power plant's lifetime fuel supply, and capitalizing an expense which would be an operating expense for a conventional power plant. Since the solar project must capitalize rather than expense this cost, the in-

vestment tax credit is particularly critical in order for these projects to be competitive with conventional facilities.

Even with the credit, the playing field is not level when capital intensive solar facilities are compared to conventional fossil fuel facilities. The tax benefits associated with fuel expenses for the fossil fuel facilities remain more advantageous than the tax treatment of capital intensive solar facilities. Only initial year expensing of costs which are fuel equivalents—in this case the solar field of a solar thermal facility—would equalize treatment.

SEIA's position, therefore, is that alternative incentives for the solar industry should initially be investment, rather than production orientated. We have the technology; we need access to long-term capital to deploy that technology which is already about one-half the cost of new nuclear generated electricity.

In this regard, as an alternative means of encouraging renewable technologies, in order to provide easier access to capital, we would suggest the incentive of tax-exempt bonds for certain renewable facilities which also meet the most stringent environmental standards. This could be far less costly than the proposed production tax credit. In line with established precedent, the energy tax credit should not be available for that portion of a project funded with tax-exempt bonds (although to structure an appropriate incentive, the current cost recovery system for renewable projects should be maintained). As a result, the revenue loss associated with extending the energy tax credits will be reduced compared with current revenue loss estimates. Assuming the state caps would not be applicable to such special purpose renewable/environmental bonds, the lower interest rates would help to attract the capital needed to greatly expand secure, environmentally-safe alternative energy resources.

CONCLUSION

The energy tax credits were originally enacted to reduce the strategic vulnerability of the United States because of our reliance on imported oil. These market incentives are even more necessary since in 1991 U.S. petroleum imports surpassed 60 percent. In recent years, continued support for the energy tax credit has been increasingly motivated by concern about the environmental consequences of extracting, shipping and burning fossil fuel to generate electric power. In fact, those energy tax credits that remain—solar and geothermal—are technologies with significant environmental benefits.

In sum, the solar industry supports a permanent or multi-year extension of the solar energy investment tax credits. The credit is predictable and well understood in the marketplace where financing decisions are made. In one respect—assuring that tax benefits are only extended to projects which actually use renewable resources to produce electricity—it is like a production tax credit: the investment credit is only earned when a project is placed in service and it is forfeited through recapture rules if the project fails to remain in service.

Most importantly, the solar industry needs the certainty which would accompany a long-term or permanent extension. Projects are being lost and new technology not developed because of the uncertainty associated with short term extensions. Moreover, we need to alleviate the harsh impact of the alternative minimum tax on the credit so that it can be utilized in full. We also ask you to look closely at targeted tax-exempt financing for these projects. The costs would be minimal, and the rewards of environmental benefits and energy independence would be significant.

The solar energy tax credit has proven to be an effective means of accomplishing both objectives: reducing the use of fossil fuel for electric power generation, industrial process heat and water heating; and reducing air pollution and other environmental risks associated with fossil fuel use.

In response to the credit, many companies engaged in solar energy research and development. Unlike outright grants, the energy tax credit is only available if property is installed, placed in service or otherwise used. Thus, for a small initial subsidy the government can assist a fledgling industry and lay the groundwork for a new era of environmentally benign energy production. Particularly at a time when Congress is struggling to fashion policies to encourage the development of clean and safe sources of power as quickly as possible, we hope that this proven mechanism will be retained to keep private capital flowing into solar property projects. I urge you not to let a vigorous solar industry die. To resuscitate it, as will inevitably be the case when the next energy crisis arises, will cost the taxpayers for in excess of the modest cost of extending the business energy tax credits and, in any event, energy savings might not be achievable in a time frame which would make a positive contribution to the national interest.

Attachment.

DOMESTIC PRODUCTION OF ELECTRICITY FROM RENEWABLE RESOURCES GERMANY & JAPAN

GERMANY

In 1988, 2.5% of Germany's total energy production was provided by renewable energy resources. Hydropower represents about two-thirds of this total with geothermal and biomass accounting for almost all of the remaining.

Active solar heating, photovoltaics and wind energy make only very minor contributions. The German Government and utilities have increased their support of renewable technologies during the past several years, including expanded R&D commitments to substantially expand wind energy capacity and support a forum to give further impetus to the development and commercialization of renewable energy. According to PROGNOS, renewable energy production will double by the year 2010.

Direct Source: 1989 Review, Energy Policies and Programmes of IEA Countries, International Energy Agency, Oct. 1990, pg. 382-83.

JAPAN

In 1989, 6.1% of Japan's total energy production was supplied by renewable energy resources. Hydropower represents about three-quarters (4.6%) of this total with geothermal and biomass accounting for almost all the remaining.

The New Energy and Industrial Technology Development Organization (NEDO) was established as an agency of the Japanese government in October 1980. NEDO is responsible for developing and promoting the use of new energy sources in Japan.

As a result of a ten year effort by NEDO, solar cells for residential power sources are about to enter the stage of practical application. NEDO has developed over 22 pilot project systems to conduct operational research on solar electric technology (Chart I).

Situated on the volcanic belt of the Pacific Rim, Japan's geothermal resources are abundant. NEDO is conducting a nationwide survey of geothermal resources under its "Nationwide Geothermal Resources Exploration Project" to promote the development of geothermal resources that are likely to remain underdeveloped by the private sector due to the risks inherent in exploration. A number of other programs are being conducted by NEDO to maximize the private sectors efficient utilization of the countries geothermal resources; these include, efforts to estimate the production capacity and optimum size of generation for given reserves; conceptual designs drawings to spur the use of small-scale geothermal power generation, verification studies on the prospecting techniques for deep and fractual geothermal reservoirs to improve techniques and insure accurate exploration technology and, the design and development of plant equipment.

NEDO is also involved in research and development to improve basic efficiency of wind energy conversion systems. However, NEDO does not expect wind energy to contribute substantially to Japan's renewable energy production, the countries average wind density is low and extremely variable.

NEDO expects renewable energy sources, excluding hydro, to account for between 1.4% to 6.2% of total energy production by the year 2010.

Direct Source: New Energy and Industrial Technology Development Organization Profile, NEDO Tokyo, March 1991, pg. 10-17.

There are a variety of public grants, concessionary loans, subsidies and tax benefits available to both homeowners and companies to encourage domestic use of solar heating and cooling systems in Japan. Loans of up to $8,500, at 5.5% interest per annum, repayable over five years are available for private dwelling applications. Loans for industrial applications are available for more than $400,000 at 6.5%, repayable over 10 years. Subsidies are available to municipalities for the installation of solar systems in public buildings. Financial aid for public projects can be as high as 50% of installation cost.

Direct quote: The Development of Solar Energy and Federal Income Tax Credits, Robert R. Nathan Associates, Washington D.C., March 1985, pg. 39.

CHART I

Demonstration and Test Facility of PV Systems	Capacity	Schedule	Details
(1) Stand-Alone Types			For use at sites without access to existing power grids
Power Supply System for Remote and Mountainous Regions	5kW	1984-1987	Includes small-scale fuel cells (4 kW) as a backup power source
Power Supply System for Remote Islands	50kW +200kW	1984-1990	Includes diesel generator as backup power source
Desalination System for Remote Islands	①25kW	1984-1988	Power-supply systems for seawater desalination equipment
①Electrodialysis ②Reverse Osmosis	②30kW	1985-1988	
Power Supply System for Marine Use	10kW	〃	
PV/Dendro Hybrid System	5kW	〃	PV is combined with a dendro-thermal power generator
PV/Methane Gas Hybrid System	30kW	〃	PV is combined with a methane gas power generator
Power Supply System for Broadcasting Satellite	35kW	1986-1988	
Power Supply System for Tunnel Illumination	17kW	〃	
PV/Small-Scale Hydraulic Hybrid System	30kW	1987-1990	PV is combined with a small-scale hydraulic generator
Vacation Home Use	2kW ×3	〃	Power supply system for vacation homes on remote islands
Desalination System for Brackish Water	65kW	1988-	Power supply system for desalination equipment
PV/Wind Hybrid System	①32kW	〃	PV is combined with a wind power generator
①for Irrigation Pumps ②for Mountain Lodges	②70kW	〃	
Power Supply System for Agricultural Factories	300kW	〃	
Power Supply System for Character and Image Displays	16kW	1989-	Large-scale electrostatic moving electrode display
PV/System Demonstration Study	750kW	1990-	Demonstrated in combination with a diesel generator on a remote island
(2) Light-Thermal Hybrid PV Power Generation System			For use in combination with a system utilizing local energy
①Concentrated-Type Hybrid Panel	5kW	1980-1984	High-temperature heat collector (heat/25kW)
②Flat Plate-Type Hybrid Panel	3kW	1985-1989	Low-temperature heat collector (heat/21kW)
(3) On-Site Types			For use at sites connected to existing power grids
Power Supply System for Single-Family Dwellings	3kW	1980-1984	Reverse power flow protection
	2kW ×100	1980-	Test facility for dispersed small-scale PV system
Power Supply for Multi-Family Dwellings	20kW	1980-1984	Instantaneous switching
Power Supply System for Schools	200kW	1980-1986	Reverse power flow protection
Power Supply System for Factories	100kW	〃	Connected on DC side
(4) Utility Power Types			Used as power plant
Dispersed Array Type	200kW	1980-1987	A large number of PV systems linked by remote control
Centralized Array Type	1,000kW	1980-1989	Solar panels are all concentrated at one site

(The above dates refer to the time period beginning with the commencement of the design stage and ending with the completion of operation testing.)

Source: NEDO Profile, pg. 11.

Factsheet #1

Utility-Scale Solar Thermal Electric Generating Facilities

Present Status. Over 350 megawatts of utility scale solar thermal electric generating capacity is now on line and integrated into the U.S. electric utility grid. The largest units in service today are 80 megawatts, which will expand in over 150 megawatt increments now that the PURPA cap has been temporarily waived. Future growth of the solar thermal electric generation industry is dependent, in large measure, on the extension of the federal energy tax credit.

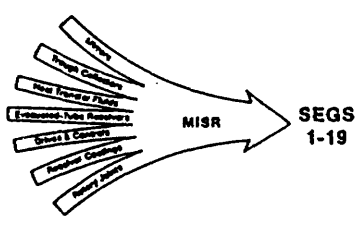
Importance of Federal Energy Tax Credits. Energy tax credits have enhanced the industry's ability to attract private capital. It is difficult to raise capital for relatively low fossil fuel prices over the past decade, it has been a challenge for the solar thermal industry to remain competitive in a marketplace where prices are based on fossil fuel costs.

Although combined federal and state investment and energy tax credits have steadily declined as the technology has evolved, it has been possible to finance solar thermal projects because of dramatic cost reductions and technology improvements to increase efficiency. Since 1984, the lifecycle cost of producing solar thermal electricity has been reduced from 24 cents per kilowatt hour to 8 cents per kilowatt hour -- a 67 percent improvement in five years.

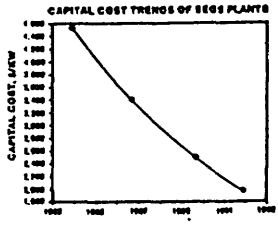
Extension of Credits Critical to Industry Survival. At the present time, the solar energy tax credit remains the margin of economic viability and will remain so until technology improvements reduce generating costs to approximately 6 cents per kilowatt hour, or external market conditions improve. Industry funded research and development is presently underway to accomplish the necessary technology improvements, but will take several more years to reach fruition.

Particularly at a time when Congress and the Administration are struggling to fashion policies to encourage the development of clean sources of power as quickly as possible, this proven mechanism should be retained to keep private capital flowing into solar projects which have already demonstrated reliability.

Environmental Benefits. Each 80 megawatt solar facility is capable of reducing the cost of oil imports by $280 million over the thirty year life of a project. While it is difficult to quantify the economic value of energy independence and fuel diversification, it is becoming increasingly clear that the economic value of reducing pollution outweighs the cost of the tax credit. The cost of the tax credit for each kilowatt hour generated over the thirty year life of a facility is approximately one half cent. The economic value of the emissions reductions is more than twice that amount, without placing any fixed value of carbon dioxide emission reductions.



Commercial Solar Thermal Systems



Factsheet #2

Commercial-Scale Solar Water Heating and Industrial Process Heat Applications

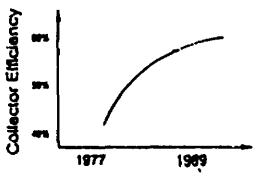
Present Status. Approximately 1.5 million buildings in the United States use solar thermal applications to heat water, create steam for industrial processes, or heat space which displaces 366 megawatts (equivalent) of electricity. Solar water heating makes up nearly 90 percent of the market and about 15 percent of the current installations are in the commercial sector. Future growth of commercial applications of solar thermal technology involve ways to lower up-front costs in a technology whose payback runs from 5 to 10 years.

Importance of Federal Energy Tax Credits. Energy tax credits have been an important tool to leverage investment in technology in a longer-term payback. Our industry faces a market impediment regarding solar technologies which have inherently higher up-front capitalization but whose life-cycle costs are less than conventional thermal energy applications when fuel costs are taken into account. As a result of technology improvements, increased market penetration, and a stronger delivery infrastructure for maintenance, solar thermal applications have increased dramatically in recent years in the commercial sector. Efficiency has increased from 40 percent in 1975 to over 60 percent in 1990 with maintenance problems dropping to less than 3 percent nationwide, and almost all solar collectors are nationally-certified.

Extension of the Solar Tax Credits are Critical. At the present time, the commercial solar tax credits are the only incentive to integrate solar thermal applications in the commercial water heating and industrial process heat sectors. The United States is significantly behind every other industrialized nation in utilizing solar thermal applications. Industry/government R&D programs are underway to assist in the integration of certified solar equipment in the existing Federal Home Administration (FMA) loan program. Once that is achieved, solar thermal will be more easily integrated into federal loan programs which finance commercial installations such as the Farmers Home Administration (FmHA) financing program which is likely within the next five years. The building sector uses 35 percent of energy for lighting, heating & cooling & process heat. The solar tax credits are the only existing incentive in the building sector to utilize energy efficient devices.

Environmental Benefits. Solar thermal applications can offset nearly 25 percent of U.S. energy use. Emissions from the building sector account for nearly 25 percent of environmentally-degrading emissions through either direct combustion of fossil fuels within the building structure or by utility plants providing electricity to these structures. The economic value of reducing pollution clearly outweighs the costs of the credit which in the building sector is the least expensive way to curtail emissions other than car-pooling.

Efficiency Has Improved



Factsheet #3

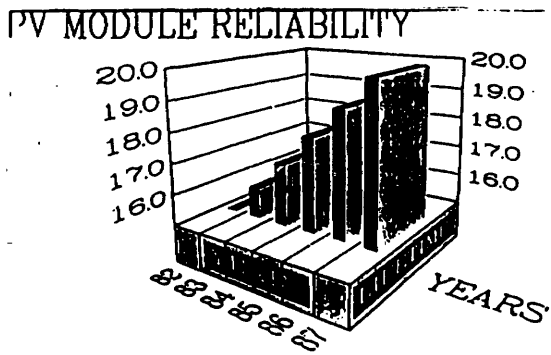
Photovoltaics for Utility and Commercial-Scale Applications

Present. Nearly 35 megawatts of photovoltaic (solar electric cells) electricity is interconnected with our nation's utilities or used by the commercial sector. Most utility companies are using photovoltaics for off-grid applications such as powering communications, sign & area lighting, and buildings. While sales for photovoltaics have increased nearly 35 percent from 1989 to 1990, the sales increase was predominantly for the Third World.

Importance of the Federal Energy Tax Credits for Large-Scale Usage. While solar photovoltaics have reduced their costs ten-fold in the last decade, currently photovoltaics are three-fold higher than baseload conventional energy. Environmental benefits, modularity, and ease of use combined with fast plant construction times and natural compatibility with peak power needs make photovoltaics far more attractive than its higher cost would belie. The U.S. photovoltaics industry is in the classic chicken-and-egg situation, that with extended commercial tax credits they will scale-up their manufacturing facilities which could cut costs by 30 percent.

Extension of Solar Credits Critical to Industry Survival. At the present time the solar energy tax credits lower the risk for investment into a very high-tech and new technology. The use of photovoltaics on a large-scale can only be increased with incentives in-place. The Administration has proposed a Photovoltaic Manufacturing Initiative in its FY'91 and FY'92 Budget request. The U.S. Department of Energy Initiative is to assist the U.S. photovoltaics industry to scale-up its production to overcome certain technological hurdles to scale-up manufacturing. However, manufacturing assistance in scale-up will be meaningless if the emerging market does not increase so as to attract investment in new manufacturing facilities.

Environmental Benefits. Photovoltaics directly convert sunlight to electricity without noise, moving parts, or emissions. The maintenance of photovoltaic equipment is minimal and thus environmentally benign. The United States must be prepared to create an environment for private sector investment in photovoltaics or the U.S. will lose its lead, only to import the technology of the 21st century from our international competitors.



PREPARED STATEMENT OF SENATOR ARLEN SPECTER

Mr. Chairman, I thank you for the opportunity to testify on the tax provisions of S. 326, a bill to promote energy conservation and greater efficiency in our use of available energy resources.

Even as the recent conflict in the Persian Gulf threatened a severe disruption of the world's oil supplies, our country's consumption of energy has continued to grow despite the growing uncertainty with respect to the availability and cost of future energy resources. According to Department of Energy statistics prior to the release of the National Energy Strategy, if present energy consumption trends continue, the Nation would need 206 quadrillion Btu's in the year 2030, as opposed to present consumption of 86 quadrillion Btu's.

I believe that unless we control our demand for energy, we risk putting our economic welfare and security at the whim of those who will control future energy markets. To counter this threat, we have seen a variety of legislative initiatives in the 102nd Congress aimed at promoting energy conservation. The problem is that although most of us agree that energy conservation is an important objective, there is very little consensus concerning which methods are most appropriate. As with many environmental issues, there is a subtle balance between what is desirable for purposes of promoting energy conservation and what makes practical business and economic sense.

The purpose of the energy conservation bill I have introduced is not to present a proposal for a comprehensive energy policy, but to encourage practical conservation practices that could bring about significant near-term results. I discussed the concept for this legislation last November with George Frampton, President of the Wilderness Society, who observed that it was unfortunate that a number of sensible and potentially effective energy conservation ideas have either gone unnoticed or have been coopted by larger, more controversial legislative initiatives. Accordingly, with assistance from the Alliance to Save Energy, I have sought in S. 326 to cull the sensible energy conservation proposals from other legislation, broaden its scope, and combine it with a number of new ideas targeted at the Federal Government's energy consumption, the utility industry, and federal housing and commercial building regulations.

As this hearing attests, I feel that energy tax provisions are among the best ways to bring about change. I will address three sections of my energy bill which provide tax credits and incentives to promote energy conservation: Section 201 relating to public utilities, section 301 concerning retrofit of oil burners, and section 602, dealing with employee subsidized parking.

SECTION 201

Mr. Chairman, if we are to achieve any meaningful long-term progress in energy conservation the utility industry must be the focus of our effort. Accordingly, section 201 targets ratepayers themselves and amends the Internal Revenue Code of 1986 to ensure that gross income shall not include the value of any rebate provided by a public utility to a customer for the installation of energy conservation equipment in their homes. To assist ratepayers in making intelligent home improvement purchases, the legislation also requires the Secretary of Energy to establish an insulation value rating system for home and commercial windows and requires that all windows display a label disclosing the rating of the window.

SECTION 301

According to the Alliance to Save Energy, of the 12,000,000 homes which use oil for heating, only 40 percent have been retrofitted with energy efficient oil burners, even though retrofitting saves an average of 16 percent for household energy bills. The purpose of this section is to provide a direct incentive for consumers to purchase energy efficient oil burners in their homes. Under S. 326, consumers who install qualified oil retrofit conservation measures are eligible for a tax credit not to exceed $100, thus encouraging homeowners to use this available conservation technology.

SECTION 602

As a long time supporter of public transportation, I firmly believe that a strong public transportation system is essential if we are to escape from our dependency on foreign energy sources. According to the General Accounting Office, oil use for transportation has grown steadily since 1982 and now accounts for an all time peak of 63 percent of United States oil consumption. Moreover, transportation fuel use

represents a 20 percent increase since 1973, and motor vehicles and airplanes will be the hardest hit as petroleum supplies diminish. It is imperative, then, that we provide strong incentives for individuals to make public transportation a viable and attractive alternative to driving. Section 602 of S. 326 states that an employer may not take a tax deduction in connection with the providing of a parking space to an employee unless the employer offers the employee a cash allowance equal to the fair market value of such a parking space. Such a provision allows workers to make choices that are not only economically sound, but environmentally conscious as well.

This bill, Mr. Chairman, contains what I believe to be a sensible approach to energy conservation and meets the challenge of finding incentives and penalties which are fair, and which will produce significant long-term results. I thank the Chair for giving me this opportunity to testify, and I urge my colleagues to join me in support of this legislation.

PREPARED STATEMENT OF VITO A. STAGLIANO

Mr. Chairman and Members of the Subcommittee, I appreciate the opportunity to appear today to discuss a number of bills you are considering to provide tax credits for renewable technologies and conservation investments. In the testimony I am presenting, I will first outline the Administration's preferred means for accomplishing the goals of the legislation being proposed. Next, I will specifically comment on the bills as they affect electric generation, conservation, alternative fuel vehicles and transportation efficiency.

NATIONAL ENERGY STRATEGY

The question before this Committee today is whether tax law changes are necessary to increase the production of electricity from renewable sources, reduce the demand for energy through conservation, encourage the use of alternative fuel vehicles and mass transit, and increase fuel efficiency. The bills under consideration support these goals but at greater cost to the Nation than we believe other means would entail.

The National Energy Strategy (NES) contains a number of proposals to accomplish similar goals, including initiatives to:

- Expand Integrated Resource Planning
- Clarify tax treatment of utility discounts on electric bills for efficiency investments
- Increase research and development of renewable and other alternative energy technologies in order to reduce cost and accelerate their application and use
- Expand the use of mortgage financing incentives for energy-efficient housing
- Improve the efficiency of public housing
- Set cost effective appliance and equipment standards and expand consumer knowledge of energy efficiency benefits
- Expand and support States' efforts to promulgate improved building efficiency standards
- Increase tax incentives for public transit use
- Accelerate the scrappage of older cars
- Reform hydropower regulation
- Reform the Public Utility Holding Company Act of 1935 (PUHCA) to encourage competition, innovation and efficiency in electricity generation
- Amend the Public Utility Regulatory Policies Act (PURPA) of 1978 to promote greater use of renewable technologies
- Extend the 10 percent investment tax credit for qualifying solar and geothermal investments.

For the most part, these actions rely on regulatory reform, technology improvement and economic incentives to reach desirable objectives. We believe this generally is a better approach to achieving energy efficiency and promoting new energy technologies than providing large subsidies through the Internal Revenue code. Tax credits or other similar subsidies should be used very sparingly lest they become institutional disincentives to technological innovation and economic efficiency.

The intent of our common efforts should not be to select favored technologies but to remove barriers to the commercialization of a wide range of promising technologies that would increase competition in the marketplace and provide consumers with a broader range of choices. A significant barrier to the increased use of renewable energy technologies is that several of these technologies are not economically

competitive with conventional energy sources under current conditions: in part because of perceived risk; in part because of higher up-front costs; and in part because of technical limitations to their applicability. Additionally, a variety of regulatory constraints, ranging from complex and expensive licensing procedures to local zoning codes, tends to retard the utilization of the full range of renewable energy resources.

These impediments are addressed in the NES. Action by Congress on these NES proposals, together with the global imperative to develop cleaner energy technologies, will lead to new opportunities for market penetration by renewable energy systems. Our challenge is to ensure that we make the vigorous R&D investments necessary for these technologies to be ready to seize the market opportunities being created.

As a general rule, Federal subsidies are a less effective public policy approach to foster superior energy technology than are R&D and competitive markets. Nevertheless, the Administration has endorsed: (1) the extension through 1992 of the energy investment tax credit for solar and geothermal technologies; (2) making the research and experimentation tax credit permanent; (3) providing tax-free treatment for utility efficiency discounts; and, (4) increasing the level of tax-free transit subsidies. In these instances, we believe the benefits outweigh the costs.

If fully implemented, we project that the NES would reduce primary energy demand in this Nation by 7.5 Quadrillion Btu (Quads) in 2010 from what it would otherwise have been under continued current policies. Furthermore, oil consumption in the transportation sector is estimated to be reduced by 3.4 million barrels a day in 2010, with 2.2 million barrels a day resulting from the increased use of alternative fuels and 1.2 million barrels a day from efficiencies resulting from enhanced R&D. The DOE also projects that, taken together, the NES initiatives would increase electricity generation from renewable energy sources by 16 percent in 2010. These initiatives would enhance the market penetration of renewable energy technologies with maximum economic efficiency and minimal impact on the Federal budget.

It should be noted that legislation providing tax credits to encourage investments in each of the areas being considered today faces two questions: (1) how will the incentive be financed; and (2) will the tax credits stimulate investments that would not otherwise have been made? Budgetary constraints were a key consideration in the development of the NES. But equally important were the lessons learned from the history of Federal subsidies. Such subsidies become, more often than not, permanent crutches that retard innovation and increase the public treasury's burden.

Now let me turn to a discussion of the specific proposals being considered by the committee.

BILLS BEFORE THE COMMITTEE

I. Electricity Generation by Renewable Technologies

S. 731, the Administration bill introduced by Senator Packwood, and the other legislative proposals under consideration would amend the Internal Revenue Code to provide additional tax incentives for renewable energy technologies. The other legislative proposals, S. 466, S. 141, section 7101 of S. 661, section 801 of S. 741, section 101 of S. 743, and S. 1157, would go considerably further than the Administration's proposal in providing tax incentives for renewable energy technologies, and in extending the existing investment tax credit for a longer period of time. The Administration considered these alternatives, but did not select them for the National Energy Strategy because (1) they were more costly than the proposals adopted, and (2) they are unlikely to be substantially more effective.

S. 141 and S. 1157 (Senator Daschle) S. 141 would amend the Internal Revenue Code to extend the solar and geothermal energy tax credits for a 5-year period, from 12/31/91 to 12/31/96. S. 1157 would amend the Internal Revenue Code to allow the energy investment tax credit for solar and geothermal property against the entire regular tax and the alternative minimum tax. The credit may not exceed the taxpayer's total tax liability.

S. 466 (Senator Grassley with Senator Daschle) and S. 661, Section 7101 (Senator Burns) These bills would amend the Internal Revenue Code to provide a production credit for electric energy produced with renewable energy technologies. These technologies include solar thermal, photovoltaic, wind, geothermal (other than dry steam geothermal), and biomass (not including aquatic plants and waste residue from wood, animal, municipal, and agricultural sources). The Secretary of the Treasury, after consultation with the Secretary of Energy, may designate additional technologies within one year of enactment of this bill. Eli-

gible facilities must be placed in service after 12/31/91, and before 1/1/2002; energy produced at these installations must be sold by 1/1/2009 to qualify for the credit.

This tax credit is based on kilowatt-hours (kWh) produced at the facilities, and declines from 2.0 cents/kWh for facilities placed in service during tax years 1992-96, to 0.3 cents/kWh for facilities placed in service during 2001. The credits are adjusted for inflation, are reduced to account for other credits provided to a facility, and may not exceed the tax liability of the facility. The tax credit for geothermal facilities is one-half that for other renewable energy technologies.

Within one year of enactment, the Secretary of the Treasury, after consultation with the Secretary of Energy, shall prescribe rules for the flow-through of tax benefits to the customers of public utilities.

The bill also extends the solar and geothermal energy credits provided under Section 48(a)(2)(B) from 12/31/91 to 12/31/96. The bill would be effective for tax years after 12/31/91.

The Administration considered such an approach during preparation of the NES, but rejected it as too costly. We estimate the budget impact to be extremely high, in the range of $0.5 billion to $2.0 billion over five years.

S. 741, Section 801 and S. 743, Section 101 (Senator Wirth) These sections are identical to S. 466 and Section 7101 of S. 661, with the exception that they would add a production credit of 0.65 cents/kWh (65 mils/kWh) for electricity produced and used at commercial and industrial solar facilities that are installed within 6 years of enactment of this bill.

S. 731, the Administration bill introduced by Senator Packwood, proposes extension of the solar and geothermal tax credits for one year.

Wind technologies are relatively mature and do not require long-term Federal subsidies for their development and use. This also is true of many geothermal technologies. For solar technology, we believe that R&D to reduce cost and increase technical viability is a more critical requirement than tax subsidies. To that end, the Administration has increased DOE's renewable R&D budget 45 percent from the $141 million appropriated in FY 1990 to the $204 million requested in FY 1992. We believe, furthermore, that the reforms we have proposed to PURPA (to remove the size cap and co-firing limits for renewable energy installations) and to PUHCA, combined with the 10% tax credit and the enhanced R&D investments, will open the economic horizons of these technologies.

II. CONSERVATION

A. Conservation rebates

The Committee has asked for DOE's views on several bills that, in general, would exclude from a utility customer's gross income the value of any subsidy the utility provides for the purchase or installation of a conservation measure. The exclusions would apply to residential, commercial and industrial customers.

S. 922 (Senator Daschle) S. 922 would amend the Internal Revenue Code to exclude from gross income the value of any subsidy provided by an electric utility to a residential, commercial or industrial customer for the purchase or installation of any energy conservation measure. S. 922 defines an "energy conservation measure" to include (1) any residential measure described in section 210(11) of the National Energy Conservation and Policy Act (NECPA), (2) any commercial energy conservation described in former section 710(b)(5) of the NECPA, or (3) any specially defined energy property defined in former section 48(l)(5) which includes industrial property. The bill prevents any double tax benefit by denying a deduction for that part of the cost of a device covered by the subsidy, and by reducing the depreciable tax base by the amount of the subsidy.

An "electric utility" is defined as any person, corporation, State agency or local unit of government, or Federal agency engaged in the sale of electrical energy. Not eligible for income exclusion would be any payment to or from a qualified cogeneration facility or qualifying small power production facility under section 210 of the Public Utility Regulatory Policies Act of 1978.

S. 83 (Senator Symms) This bill is similar to S. 922, but is expanded to exclude payments from gas and water utilities, as well as electric utilities for energy or water conservation measures. Qualified Facilities under PURPA are eligible to provide and receive payments excluded from income.

S. 326, Section 201 (Senator Specter) Section 201 of S. 326 is the same as S. 922, but applies to gas as well as electric utilities. Qualified Facilities under PURPA are eligible to provide and receive payments excluded from income.

S. 679 (Senator Bradley) This bill is the same as S. 922, but would exclude the value of a financial assistance or service, rather than subsidies, and limits the tax exclusion to residential customers.

S. 741, Section 831, identical to S. 743, Section 131 (Senator Wirth) Section 831 of S. 741 and section 131 of S. 743 are the same as S. 922, but they, like S. 83, apply to water as well as gas. The Wirth proposals would exclude the value of subsidies for use and maintenance, as well as the purchase and installation of conservation measures. Not eligible for income exclusion would be any payment to or from a qualified cogeneration facility or qualifying small power production facility under section 210 of the Public Utility Regulatory Policies Act of 1978.

The NES supports clarification of existing Federal tax law regarding utility customer incentives to promote investments in energy conservation and efficiency measures. Specifically, the NES calls for clarification that a customer's income does not include utility rate discounts and non-refundable credits on customer bills to encourage participation in energy efficiency programs. Industrial customers, as well as residential and commercial users, would qualify for this exemption from Federal taxation. On June 11, 1991, the Internal Revenue Service issued a revenue ruling reflecting the Administration's policy in this area as described in the NES.

The utility cash rebate proposal was not included in the NES because we believe that it fails both tests outlined at the outset of this testimony. It is potentially very expensive and may well reward consumers for doing things they would have done anyway in their own interest. We believe utility conservation and efficiency programs can be designed to promote cost-effective customer investments without new legislation.

B. Tax credit for oil retrofit expenditures

S. 741, Section 821 and Section 121 of S. 743 (Senator Wirth) Section 821 of S. 741 and section 121 of S. 743 are identical. They would provide a tax credit of up to $100, or $50 for a married individual filing separately, for certain oil retrofit conservation expenditures for components installed by the taxpayer on his or her principal residence. These components would include a flame retention replacement burner or comparable technology, an item which increases the insulation value, including that of a water heater, an automatic thermostat control, or an item that increases the insulation value of a window. The credit is allowed only for a component that begins its original use with the taxpayer and can be expected to remain in operation for at least three years. The credit would expire on December 31, 1995. Expenditures made with subsidized energy financing would not be eligible for the credit.

S. 326, Section 301 (Senator Specter) This is similar to the Wirth proposal, but would not provide a tax credit for an item which (1) increases the insulation value, including that of a water heater, (2) is an automatic thermostat control, or (3) increases the insulation value of a window.

The Administration opposes tax credits for oil retrofit expenditures. We see no reason to single out one heating source for such credits. Propane, natural gas and other fuels would seem as deserving. While this proposal may lead to incremental improvements in the efficiency of oil combustion, it would also tend to work against achieving the goals of energy security and economic efficiency, and gaining the environmental benefits of transforming to non-petroleum home heating fuels. In addition, the market or information barriers that have been identified do not warrant this particular kind of government intervention for oil heat efficiency.

III. ALTERNATIVE FUEL VEHICLES

Only one bill before the committee deals with the use of alternative fuels.

S. 1178 (Senator Rockefeller) This bill allows taxpayers to deduct, rather than capitalize, a portion of the cost of vehicles that use alternative fuels (described in the bill as "clean-burning fuels") and the facilities that will deliver these alternative fuels. The deduction is available for vehicles purchased either for business or personal use. The amount of the deduction for qualified vehicles ranges from $2,000 for automobiles and light trucks to $50,000 for trucks weighing over 26,000 lbs. The maximum deduction available for refueling facilities is $75,000. The clean-burning fuels targeted by this incentive include natural gas,

liquefied petroleum gas, and any fuel at least 85% of which is methanol, ethanol, any other alcohol, or ether.

This incentive is intended to "jumpstart" the widespread use of alternative fuels in the marketplace. While the Administration agrees that it is important to increase fuel and technology diversity in the transportation sector, the NES accomplishes this by establishing alternative fuel fleet purchase requirements and by removing the cap on the existing fuel efficiency credits for manufacturers of alternative fuel vehicles rather than by providing tax credits for such vehicles and related equipment. Our experience with other tax incentives indicates that the cost of the resulting oil savings would be very high and not necessary since the existing and expanded proposals are sufficient. Rather than use the tax system to stimulate and subsidize a greater level of investment in specific alternative fuels and technologies, the NES charts a course for commercializing alternative fuels through far less costly venues.

IV. TRANSPORTATION EFFICIENCY

In order to encourage a reduction in the consumption of oil by the transportation sector for both energy security and environmental reasons, several bills have been introduced that promote the increased use of mass transit and ridesharing. Under current law and regulation, while parking provided by the employer to the employee on or near the business premises is treated as a tax-free fringe benefit, public transit passes provided by an employer are only excludable from taxable income if the value does not exceed $15 per month. To give employers an added incentive to provide benefits above $15 and to reflect increases in the cost of living since 1984, the NES recommended that the amount of tax free transit benefit be increased. On May 20, 1991, the Internal Revenue Service recently proposed an amendment to current regulations that would increase, effective July 1, 1991, the exclusion for public transit passes from $15 to $21. This increase represents the effects of the inflation that has occurred since the $15 rate was established.

S. 26 (Senator Moynihan); S. 129 (Senator Cranston) Both S. 26 and S. 129 increase the amount of excludable qualified transportation fringe benefits. S. 26 would increase benefits to $60 per month and S. 129 to $30. Qualified transportation fringe benefits include transportation in a commuter highway vehicle between the employee's residence and place of employment and any transit passes.

S 741, Section 811 and S. 743, Section 111 (Senator Wirth) S. 741 and S. 743 include a proposed exclusion from gross income of certain transportation subsidies for travel between the employee's residence and place of employment and the value of parking provided to the employee on the employer's premises. The income exclusion is provided only to the extent that the value does not exceed $75 per month.

S. 326 (Senator Specter) S. 326 allows an employer to deduct the cost of providing a parking subsidy to an employee only if the employer also provides the employee with an election to receive cash for a mass transit, car pool, or van pool subsidy in the same amount.

The current $15 per month exclusion for transit passes has attracted relatively few riders to mass transit. We believe the proposed 40 percent increase in tax-free mass transit subsidies to $21 per month is a step in the right direction. In addition, the Urban Mass Transit Administration (UMTA) and DOE are in the process of evaluating options in support of employer-subsidized transit passes as part of the Administration's desire to help make mass transit even more attractive. It is our intent to report back to Congress the results of this analysis.

Several tax incentive measures designed to promote increased fuel efficiency also have been introduced. Currently, the Internal Revenue Code imposes a gas guzzler tax on the sale of automobiles if the fuel economy falls below a certain level. For automobiles getting less than 22.5 miles per gallon (MPG), a tax based on a sliding scale is collected that ranges from $1,000 to $7,700.

S. 201 (Senator Gore) S. 201 increases both the fuel economy requirement and the amount of the gas guzzler tax. Model Year 1992 cars are not subject to the tax as long as the automobile's fuel economy is at least 23.5 MPG. For each year thereafter, the minimum fuel economy required increases by one mile per gallon. The amount of the gas guzzler tax under this bill ranges from $1,000 to as much as $16,400 (on Model Year 2000 cars getting less than 13.5 MPG). This bill, however, also allows consumers to claim a tax credit if the fuel economy of the vehicle purchased exceeds the required fuel economy for that model class

type by a specified percentage. If the fuel economy exceeds the required amount by at least 15 percent, the credit ranges from $250 to $750 on Model Year 1993 and 1994 vehicles. For Model Year 1995 through 2000 vehicles, if the fuel economy exceeds the required amount by at least 20%, a credit ranging from $400 to $2,000 is available.

S. 741 Section 841 and S. 743, Section 141 (Senator Wirth) Both S. 741 and S. 743 propose a "feebate" arrangement based on both the fuel economy and the relative safety of newly purchased vehicles. The bills impose a tax on the sale of new vehicles whose fuel economy is less than the sales-weighted average fuel economy of all new vehicles in the same class. At the same timer however, a rebate is provided to consumers who purchase new vehicles whose fuel economy is greater than the sales-weighted average fuel economy for that class of vehicles. The same tax and rebate program is also applied with regard to the composite safety factor assigned to the new vehicle.

As the Subcommittee may be aware, the Department of Transportation has asked the National Academy of Sciences to assess the potential to improve automobile and light truck fuel economy in light of several concurrent requirements being placed on the automobile industry. Until the study is completed, it would be premature for the Department of Energy to provide an assessment of the most appropriate methods of achieving increased fuel economy.

CONCLUSION

In summary, the Administration believes this Nation can make significant advances in energy efficiency and the use of renewable technologies through the kinds of actions comprising the National Energy Strategy. Many of the tax code changes reflected in the legislation that is the subject of this hearing would be very expensive, we believe, given the likely energy benefits.

PREPARED STATEMENT OF JOHN H. SULLIVAN

Good morning, Mr. Chairman, members of the Subcommittee. My name is John H. Sullivan. I am the Deputy Executive Director for Government Affairs of the American Water Works Association (AWWA). I am here to present testimony on behalf of AWWA and the National Association of Water Companies on the proposals to amend the Internal Revenue Code of 1986 to exclude from gross income the amount or value of incentives made by public utilities to customers to subsidize the cost of water conservation services and measures. I want to thank you and the members of the Subcommittee for providing us the opportunity to present our views on these proposals which are vital to conserving one of our most precious natural resources.

The American Water Works Association is an 110-year-old scientific and educational association and the largest association in the world representing drinking water supply professionals. Our 53,000 plus membership is comprised of administrators, utility operators, professional engineers, contractors, manufacturers, scientists, professors and health regulators. Our membership includes over, 3,500 municipal and investor owned utilities which supply 75 percent of the nation's drinking water. Our purpose is to promote public health, safety and welfare through the provision of safe, high quality drinking water.

America is facing a significant source water problem in both quality and quantity. This is of particular concern to the AWWA members who have the responsibility of providing the nation's drinking water. Many have active water conservation programs and most of the water conservation strategies developed to date have been pioneered by AWWA and NAWC members. AWWA and NAWC believes that commitment to efficient use of existing water supplies is rapidly becoming one of the nation's highest priority resource conservation issues. Increasing demands on limited high quality water sources and persistent or recurring drought conditions in many regions of the United States demands that water supplies be used wisely by all suppliers and consumers of water. AWWA and NAWC support Congressional actions to promote wise and efficient use of water by the nation's municipalities, industries, farmers and home consumers. The proposals being considered this morning address eliminating a tax penalty to consumers who are taking action to help conserve America's water supply.

The bills being considered by the Subcommittee this morning primarily focus on energy conservation to keep the American economy viable and competitive in the world markets. Enormous economic and social gains can be made by increased

energy efficiency in our homes to lessen our dependence on foreign sources of energy. But, at the same time, we cannot overlook the economic and social costs of wasting our nation's precious water resources. In a recent report, the National Association of Home Builders said, "Water supply is emerging as a constraint on growth and a basis for building regulation" throughout the country. People must have housing which is not restrained by lack of adequate water supplies. People need jobs in business and industry which are not restrained by lack of adequate water supplies. People need food which is not restrained by lack of adequate water supplies. And most important, people need water to drink just to sustain life. As with energy conservation, cost-effective water utility assistance to homeowners, tenants, and landlords for water conservation should not be considered as taxable income.

The savings to the economy in water costs alone is not inconsequential. The total estimated household water savings with the use of low-flow plumbing fixtures is approximately 10 percent of the total drinking water consumption. The estimated nationwide water savings with the use of low-flow plumbing fixtures is approximately 1.7 trillion gallons per year. The money saved on the nation's water and sewer bills would be in the multi-millions every year. This is money which could be used more productively elsewhere to maintain a viable economy and stimulate more tax revenues.

Other Congressional committees are considering bills which will promote water conservation. We have worked with the staffs of Senator Fowler and Representative Atkins on both the National Plumbing Products Efficiency Act and the Municipal and Industrial Water Conservation Act. AWWA and NAWC continue to support water conservation legislation. These bills promote water conservation by establishing national manufacturing and labeling standards for plumbing products and establish water use levels and energy conservation standards for home plumbing equipment. These measures can significantly reduce water use. The Washington Suburban Sanitation Commission (WSSC) was one of the first local agencies in the nation to set limits on household water use. Since 1973, WSSC has required toilets using 3.5 gallons per flush, faucets that hold water flow to 1.5 gallons per minute, and shower heads allowing a flow of no more than 3.5 gallons per minute. As a result, according to WSSC records, WSSC customers consume 65 gallons per person per day, which is considerably lower than the national average. The proposed national standards for new plumbing products, such as 1.6 gallon per flush toilets and 2.5 gallons per minute shower heads can conserve even more water.

But these bills and new products would only apply to new construction. To significantly conserve water in this country, conversion of wasteful home plumbing must continue as a consideration by property owners. Some water utilities send the customers free water conservation devices and fixtures and provide rate incentives for water conservation. It would be counter-productive and could even defeat water conservation programs in this country, if the water utility conservation incentives to the customer were to be included in the customers gross income. The minimal amount of tax dollars forgone by the treasury would be more than made up by the conservation of our water natural resources and the additional taxes generated through increased productivity.

AWWA and NAWC respectfully requests that the members of the Subcommittee support the provisions of S. 83, S. 741, S. 743, or amendments to any other bill under consideration by this Subcommittee which would amend the Internal Revenue Code of 1986 to exclude from gross income the amount or value of incentives made by public utilities to customers to subsidize the cost of water conservation services and measures.

Mr. Chairman, this concludes my remarks. AWWA and NAWC appreciate the opportunity to present their views on this vital element of water supply. Thank you very much for this opportunity to comment. I would be pleased to answer any questions you may have.

Prepared Statement of Eric Vaughn

INTRODUCTION

On behalf of the Renewable Fuels Association, the national trade association for the domestic ethanol industry, I want to thank the Subcommittee on Energy and Agricultural Taxation for the opportunity to present testimony regarding alternative fuels, their role in the U.S. transportation fuel market, and measures to increase the production and use of alternatives such as ethanol to enhance U.S. energy and environmental security for the decade of the 90's.

First, I would like to commend the Chairman for holding these very important hearings. We cannot allow the euphoria over our military victory in the Middle East to keep us from continuing the fight for energy independence here at home. As will be discussed below, the need to develop domestically-produced renewable energy resources is greater today than at any time in our history. Chairman Daschle has long recognized the importance of this effort. From his sponsorship of the Gasohol Competition Act of 1980, to his leadership role throughout the Clean Air Act debate last year, the Chairman has worked to assure a role for ethanol in the motor fuel market of the future.

But that work is not yet complete. This Committee, however, can have a dramatically positive role in shaping the energy market of the future and assuring an increasing role for ethanol blends and all alternative fuels by establishing appropriate incentives which will allow these fuels to grow and compete in an oil-dominated market.

BACKGROUND

Since last summer, when U.S. oil imports exceeded total domestic production for the first time in history, there has been an increasing awareness of the dangers to our economy and security resulting from such a dramatic dependence on foreign oil. Public awareness became public alarm when Iraq invaded Kuwait. Suddenly, the very real price we as Americans pay, both literally and figuratively, for our growing dependence on imported energy became terrifyingly clear.

One consequence of these events is the widespread, bipartisan, grassroots support for a fundamental change in our energy policy. In fact, one recent poll concluded that nine out of every ten Americans believe the U.S. needs to reduce our reliance on oil and increase the use of domestically produced, renewable fuels, such as ethanol.

When we look at our energy policy, its effects on the current transportation fuel market, and its impact on economic, trade and foreign policies, it is abundantly clear that oil cannot continue to monopolize the U.S. energy marketplace. Alternatives to oil must be more fully utilized if America is to regain the economic strength that has made us a great nation. Moreover, because it is a domestically-produced, environmentally sound fuel that can provide immediate benefits, ethanol should be an integral part of America's energy future.

THE ROLE OF IMPORTS IN THE U.S. ENERGY MARKET

By the mid-1960's, with U.S. reserves dwindling (now less than 26 billion barrels), and the cost of production rising, U.S. gasoline marketers began to look elsewhere for their oil supplies. Today, the U.S. imports more than twice as much oil as any other nation in the world, more than 2.4 billion barrels annually. Every single day, Americans pay more than $160 million for imported oil. Last year alone our country paid a staggering $58 billion for oil imports.

TOP TEN OIL IMPORTERS [1]

Country	Annual Imports [2]	Percent of Consumption	Main Suppliers
United States	2,421	48	Saudi 18%; Nigeria 12%; Mexico 12%; Canada 11%; Iraq 7%
Japan	1,191	99	UAE 20%; Saudi 16%; Iraq 6%;
Germany	674	98	USSR 30%; UK 26%; Lybia 16%
France	483	96	Saudi 18%; USSR 14%; Norway 8%
Italy	461	93	Lybia 25%; USSR 19%; Iraq 13%
Netherlands	352	94	Iran 22%; UK 14%; Kuwait 13%
Spain	338	99	Mex. 23%; Nig. 15%; USSR 13%
S. Korea	261	100	Saudi 14%; UAE 9%; Kuwait 4%
Singapore	252	100	Saudi 28%; UAE 9%; Iran 10%
Brazil	233	53	Iraq 38%; Saudi 22%; Iran 9%

[1] Prior to Iraq's invasion of Kuwait.
[2] Million Barrels.

Obviously, where there are importers, there are exporters. Exporting countries have benefited from the largest transfer of wealth in history. In ten years the U.S. spent $1.1 trillion on oil imports—an oil bill paid with money borrowed from Japan.

The following is a list of the major benefactors of Big Oil's import binge made possible by a failed energy policy.

TEN LARGEST OIL EXPORTERS [1]

Country	Annual Imports [2]	Reserves [2]	Main Suppliers
Saudi Arabia	1,363	255,000	U.S. 52%; Japan 14%; France 6%
USSR	1,026	58,500	Germany 13%; Czech 12%; Pol 10%
Iraq	823	100,000	U.S. 16%; Brazil 11%; Turkey 11%
Iran	564	92,900	Neth. 14%; Japan 12%; Italy 9%
United Kingdom	513	5,200	Ger. 27%; Canada 18%; U.S. 18%
U.A.E.	500	98,100	Japan 47%; Italy 7%; U.S. 5%
Mexico	497	54,100	U.S. 52%; Spain 16%; Japan 13%
Nigeria	454	16,000	U.S. 49%; Spain 11%; Ger. 8%
Venezuela	382	58,100	U.S. 44%; Antilles 15%; Ger. 9%
Norway	343	10,400	U.K. 34%; Sweden 12%; Ger. 12%

[1] Prior to Iraq's invasion of Kuwait
[2] Both Exports and Reserves are listed in million barrels.
N.B.: U.S. reserves are less than 26,825 million barrels.

The most troubling aspect of the above chart is that it makes clear that our dependence on oil will only continue to concentrate both wealth and power in a small number of oil rich countries. Five countries control more than two-thirds of the world's proven oil reserves: Iran, Iraq, Kuwait, United Arab Emirates and Saudi Arabia. For perspective, consider that the proven oil reserves of Kuwait alone are almost double the combined proven reserves of the United States and Western Europe. If our dependence on oil continues, so too will the geo-political and economic strength of those five countries.

Moreover, our dependence on imports from the bottom of a barrel of oil in the form of petroleum products is increasingly being extended to a dependence on the top of the barrel as well, as imported methanol and methanol-derived fuel additives are becoming an increasingly important factor in the U.S. transportation fuel market.

As the octane and oxygen needs of the major petroleum refiners grows, so too does their reliance on imported methanol and methyl tertiary butyl ether (MTBE) to satisfy that demand. Because oil companies control the large foreign reserves of oil and natural gas from which methanol is derived, their internal economic forces will always dictate utilizing those feedstocks for their octane and oxygen needs, regardless of the public policy consequences for the nation.

Published reports indicate that more than two-thirds of the planned MTBE production expansion for the next five years is sited overseas, including the construction of the world's single largest MTBE facility to be built in the soviet Union with a daily production capacity of 33,000 barrels. In addition, industry analysts have stated that by 1995 approximately one-quarter of the world MTBE supply will come from Saudi Arabia. Facilities operated by SABIC (Saudi Government), and several major U.S. oil companies are expected to increase the Saudi MTBE capacity to more than 70,000 b/d. By 1995, non-U.S. MTBE capacity is expected to exceed 4.5 billion gallons annually, more than triple current U.S. capacity.

While U.S. MTBE capacity is also expected to grow, it is important to note that it will be sustained by increasing levels of imported methanol as a feedstock.

MTBE production is the largest consumer of methanol today, using more than 31% of total U.S. methanol supplies. According to Information Resources, Inc., total U.S. methanol production amounted to 1.1 billion gallons in 1988, with imports of 670 million gallons (40% of total U.S. methanol supplies). Imports of methanol in 1988 were up 71% from the 400 million gallons imported the previous year. Analysts indicate that the level of imported methanol for MTBE production is likely to continue to grow, particularly if neat methanol fuel markets develop on a large scale as is proposed by the Clean Air Act.

Thus, in addition to maintaining a dangerous dependence on Mideast oil, we are developing an equally dangerous dependence on Saudi and Soviet methanol for our motor fuel and fuel additive needs of the future

As a result of these foreign investments, there is still only reluctant interest to utilize domestically-produced fuel additives such as ethanol. Unfortunately and shortsightedly, if they don't produce it, market it, and control its economics, the oil

companies won't use it. The result is a tremendous and unnecessary cost to U.S. energy, environmental, and economic security.

CONSUMER ATTITUDES TOWARD ALTERNATIVE FUELS & ENERGY POLICY

The need to develop domestically-produced alternative energy sources such as ethanol is greater than at any time in our history. Our economic, energy and environmental security depend on our commitment to reducing our dependence on imported oil, finding domestically-produced, clean-burning alternatives, and establishing an energy policy which reflects U.S. public policy objectives.

This sentiment was noted by Secretary of Energy James Watkins in announcing the findings of the Department's exhaustive public comment on energy policy and proposing the Administration's National Energy Strategy:

> "Public comment received during development of the National Energy Strategy revealed virtually *unanimous* support for the development and use of renewable energy sources because of their environmental and energy security advantages." (emphasis added)

A recent nationwide public opinion survey conducted by Howard J. Rubenstein & Associates on behalf of the Renewable Fuels Association to assess the nation's pulse regarding energy security underscored the Secretary's comments. Of particular note was the fact that a majority of those polled said they would utilize alternative fuels even if available only on a voluntary basis.

Specifically, the study found:

- 83% believe the U.S. government should actively promote the development of alternative energy sources as a replacement for imported oil;
- 85% are in favor of seeing a percentage of the current U.S. gasoline supply being replaced by alternative energy sources, particularly blended renewable fuels such as ethanol;
- 50% said that alternative fuels should comprise more than 15% of our gasoline supply. 38% said that at least 25% of our current gasoline supplies should be replaced by alternatives; and
- 84% of those responding indicated that they would be willing to use alternative fuels even if they were offered only as part of a voluntary National Energy Policy.

It is clear from these results that Americans across the country feel strongly that *domestically-produced* alternative fuels, such as ethanol, should be an integral part of any comprehensive national energy plan, and measures to encourage their production and use should be aggressively pursued.

ETHANOL'S ROLE IN THE U.S. MOTOR FUELS MARKET

Over the past ten years, the U.S. ethanol industry has developed as a blend component in gasoline. Fuel marketers first used ethanol as a gasoline extender, then as an octane enhancer, and now as an oxygenate. From just 10 million gallons of production in 1979, ethanol is now sold in 45 states across the country, is used in more than 15 million cars daily, and the 9 billion gallons of ethanol blends sold in 1990 represents approximately 8% of the total U.S. motor fuel market.

Ethanol blended fuels are approved under the warranties of all 19 domestic and foreign automobile manufacturers marketing vehicles in the U.S. In fact, several of the world's largest automakers, including General Motors and Chrysler, specifically recommend the use of oxygenated fuels such as ethanol blends in their cars to take advantage of the environmental benefits that come from the use of such fuels.

As a result, ethanol blends haves gained wide consumer acceptance as a high quality fuel capable of improving performance and reducing dangerous automobile pollution emissions. In fact, since 1980 more than 950 billion trouble-free miles have been driven using ethanol blended fuels. Ethanol is the most successful alternative liquid fuel ever used in the commercial marketplace and the prospect for ethanol's future is brighter today than at time in its history.

The potential for growth in the blends market is tremendous, particularly because of the extensive effort to reduce emissions from gasolines used in the current vehicle fleet. But these same environmental concerns are opening new markets for ethanol as well—in ether markets in the form of ETBE; in mass transit markets; and in neat fuel applications in the form of E-85. These additional markets represent exciting new opportunities for the domestic ethanol industry.

First, over the past several years, refiners have added ether capacity for octane trimming. And as these refiners examine the various options available to meet the oxygen requirements established by the Clean Air Act, they will likely choose to uti-

lize their ether capacity for oxygen purposes. As noted above, to date refiners have used only methanol as the feedstock for ether manufacture, producing approximately 1.5 billion gallons of MTBE (methyl tertiary butyl ether) today. But the higher oxygen value of ethanol may well induce these refiners to rethink their feedstock choice, and encourage them to begin producing ETBE (ethyl tertiary butyl ether) instead.

ETBE can be blended at refineries and shipped through common carrier pipelines. Also, ETBE can reduce the volatility of the base gasolines with which it is blended. While ETBE is not yet commercially available, it promises to be a valuable supplemental market to 10% ethanol blends and a natural competitor to MTBE—the only ether-based oxygenate available today.

The second market opportunity beginning to develop is in the area of mass transit vehicles. Under new EPA guidelines, municipalities are required to dramatically reduce emissions from public transportation vehicles, particularly buses. Detroit Diesel has developed an engine for its buses and heavy duty vehicles which operates exclusively on ethanol. One of these vehicles is currently being tested in Colorado. But as most municipalities don't have the resources to replace their entire fleets with new alternative-fueled vehicles, Midwest Power Concepts has designed a system which allows transit officials to convert existing diesel buses to operate on a blend of 50% ethanol/50% diesel fuel. The Midwest Power Concepts design dramatically reduces particulate emissions and provides the least cost option for cities to meet the new air standards.

Finally, the President's energy security plan, which phases in a requirement for fleets of ten or more vehicles to be fueled by ethanol, methanol or natural gas, has rekindled interest in these alternative fuel vehicle technologies. It is interesting to note that if the total volume of ethanol produced last year had been used in its pure (neat) form, rather than as a blending component, it would have been enough to fuel more than one million vehicles for the year.

At the present time, an estimated 8.4 million vehicles in Brazil are operating on pure ethanol. For the past decade auto manufacturers in Brazil such as Ford, General Motors and Volkswagen have produced cars capable of delivery high performance on ethanol.

In vehicles designed to take full advantage of ethanol's higher octane, higher compression ratio, leaner combustion, higher post-combustion pressure, and greater thermal and volumetric efficiency a 30% increase in fuel efficiency compared to gasoline is achievable.

Use of an optimized vehicle fueled with neat (or less so with near-neat) ethanol should allow use of a smaller, lighter engine which delivers the same power as the gasoline-fueled engine it replaces. The weight saved in the lighter engine means that portions of the body structure and the suspension can be made lighter, especially if the engine/vehicle design is done as an entire system. The resulting vehicle will have equivalent power and weigh less than the vehicle it replaces; hence, the resulting vehicle will have better performance. The improved performance means that even further weight reductions are possible if the engine is resized for equivalent performance. The smaller engine will allow powertrain weight and cost savings because the power transmitted will be reduced.

The smaller engine size should lead to a smaller catalytic converter since most emission control systems use a certain ratio of catalyst volume to engine displacement. Also, the lower vapor pressure of ethanol compared to gasoline should result in savings in the evaporative control system.

Ethanol's combustion properties result in less heat being rejected into the engine's cooling system. The lower heat rejection and the cooler exhaust leads to more savings. The neat ethanol fueled engine will have to increase the sensible heat in the exhaust. This will require exhaust port insulation which provided the appropriate exhaust conditions for effective emission control. The fact that not as much heat is rejected into the vehicle's cooling system means that a smaller radiator can be used.

While U.S. auto manufacturers appear committed to methanol (M-85) as the alternative fuel of choice, certainly E-85 will compete for this market as well. Several E-85 cars are operating today. As the Chairman knows, the South Dakota Corn Growers have demonstrated tremendous leadership in E-85 technology and promotion—converting 12 cars to operate on E-85 for use in several different state ethanol promotion programs. In addition, last year the Renewable Fuels Association purchased two vehicles for the California Renewable Fuels Council to test in California. All of these vehicles have demonstrated their high performance qualities and low emissions—indicating their promise for the future.

PROPOSALS TO INCREASE THE PRODUCTION AND USE OF ALTERNATIVES

Last February, after more than a year of public hearings held across the country, the Department of Energy revealed its National Energy Strategy. To encourage the increased use of alternative fuels, which the Department concluded was a necessary component if the U.S. is to achieve the President's objective of a more energy secure America, the Department proposed a program to phase-in a requirement for centrally-garaged fleets of ten or more vehicles to use alternative fuels, specifically, the following percentages of alternative fuels will be required:

1995, 10 percent;.....
1996, 15 percent;.....
1997, 25 percent;.....
1998, 50 percent;.....
1999, 75 percent; and.....
2000 and after, 90 percent.....

There are approximately 5 million fleet vehicles which could be affected by this provision. Thus, depending on the alternative fuel used, the following levels of alternative fuels will be required:

1995, 350 million gallons;.....
1996, 525 million gallons;.....
1997, 875 million gallons;.....
1998, 1.75 billion gallons;.....
1999, 2.62 billion gallons;.....
2000 and after, 3.15 billion gallons.....

While certainly a good start, this program does not represent the most that this country can do to reduce our dependence on imported oil. Far more can and should be done to increase the development and use of alternative fuels.

The government could take a greater leadership role in promoting the use of ethanol-blended gasolines by removing current procurement restraints and requiring their use in all government fleet vehicles; investments in the production of alternative fuels could be greatly enhanced by the reinstatement of Energy Investment Tax Credits for domestically-produced renewable energy resources; a more aggressive alternative-fuel fleet program could be implemented; incentives to convert existing vehicles to operate on alternatives could be established; and a far greater emphasis could be placed on removing the regulatory and marketplace constraints to the use of ethanol-blended gasolines.

The Renewable Fuels Association would suggest the following Five Point Plan to enhance the marketplace opportunities and increase the economic viability of ethanol production and use. While this Committee does not have specific jurisdiction over every area of concern, it shares a commitment to the development of domestically-produced alternative fuels and we look forward to working with the Committee Members to assure the successful implementation of the domestic ethanol industry's legislative agenda.

1. *Fair Marketing Practices:* While the Gasohol Competition Act of 1980 (P.L. 96-493), sponsored by Senator Daschle more than ten years ago, made it unlawful to impose restrictions or otherwise discriminate against the sale of ethanol-blended gasolines, there are still several marketing practices which greatly prejudice the competitiveness of ethanol, including pipeline shipment of pre-oxygenated fuels which preclude the blending of ethanol and discriminatory pump labeling regulations which confuse consumers. Removing these regulatory and marketplace barriers, either by amending the Gasohol Competition Act, the Petroleum Marketers Practices Act, or creating a new Act would have a direct and positive impact on the use of ethanol-blended gasolines.

First, refiners produce gasoline for distribution through common carrier pipelines. That gasoline may then be purchased by any marketer along the pipeline route, including both their own branded retail outlets and independent gasoline marketers. The pipeline system is not conducive to segregated batch shipments of different gasolines. (A summary of the pipeline system is attached) Recognizing that gasolines will be mixed in the pipeline system, EPA has allowed under 42 U.S.C. Section 7545 (f)(1) for the transportation and sale of "substantially similar" gasolines for general use in light duty vehicles.

MTBE blends are treated as fungible product and considered "substantially similar" to gasoline at any concentration up to 2.7 percent oxygen. While ethanol may also be added at any level up to 2.7% oxygen (7.7% by volume), 10% ethanol blends may only be sold under a Section 211(f)(4) waiver which allows them to be introduced into commerce. In addition, because the pipeline system has been so poorly maintained and contaminated with water, ethanol blends are not shipped through the common carrier pipelines, but are added very effectively and economically at the terminal.

Moreover, EPA regulations preclude the addition of 10% ethanol to gasolines containing more than 2 percent by volume MTBE or other oxygenate. As a result, refiners can add just trace amounts of MTBE at the refinery for shipment through common carrier pipelines and preclude the use of ethanol by marketer purchasing fuel off that pipeline. The attached letter by Sun Oil clearly demonstrates that this is in fact occurring. And the increased use of oxygenates required by the Clean Air bill could exacerbate this problem as more and more MTBE is transported through common carrier pipelines.

There is a fairly straightforward solution:

• Prohibit a refiner from entering into the common carrier pipeline system gasoline that would preclude the addition of any legally waivered fuel or fuel additive.

This would assure a supply of clear gasoline for blending with ethanol, and would specifically prohibit the addition of MTBE into common carrier pipelines, we believe this option should be pursued. It is important to note that this would not prohibit a refiner from adding MTBE at a refinery and transported via a pipeline to that refiner's terminal or storage facility. It merely prevents that refiner from utilizing MTBE to preclude another marketer/blender from using ethanol, or any other legally waivered fuel additive.

Second, one of the specific exceptions to the Gasohol Competition Act was that "reasonable labeling" of gasohol could be required. Manufacturers were also allowed under the Act to advertise that their gasoline did not contain alcohol. In fact, both practices have been widely used. Numerous states have enacted labeling laws which require that only ethanol be labeled at the pump. But in addition to creating an anti-ethanol bias, state labeling laws serve as a platform for oil companies to conduct anti-ethanol advertising. The presence of "NO ALCOHOL" signs in conjunction with ethanol labels only serves to confuse and alarm the public, fueling consumer misperception that ethanol blends should be avoided.

In light of the ten years of successful use of ethanol blends, with more than 950 billion miles driven on the clean-burning fuel and countless tests demonstrating their effectiveness, the Gasohol Competition Act should be amended to make discriminatory pump labels and "NO ALCOHOL" advertising unlawful under the Act.

Assuring fair marketing practices among the various oxygenated fuel components will greatly enhance ethanol's ability to compete in the marketplace and encourage the increased use of this valuable, domestically-produced, renewable fuel.

2. *Energy Investment Tax Credits:* In response to the first energy crisis of the mid 1970's, the Congress enacted Energy Investment Tax Credits to encourage the development of domestically-produced energy resources. These tax credits were extremely helpful in assisting the development of first-generation ethanol facilities. In fact, as a result of those investment tax credits, over 100 ethanol production facilities capable of producing over 1.2 billion gallons of ethanol were constructed with a private sector investment in excess of $2 billion.

Given the current investment climate, and the difficulty in securing financing for plant construction, the re-establishment of similar investment tax credits could be extremely helpful in assuring that the second generation of ethanol plant capacity is built. The Renewable Fuels Association would strongly advise this Committee to move forward on such an initiative—there is possibly no more effective means of encouraging the financial community to finance new and expanded ethanol production capacity than by demonstrating its willingness to be a partner with America's farmers and the domestic ethanol industry to assure an expanded supply of clean-burning fuel ethanol.

3. *Tax Incentives to Encourage Alternative Fueled Fleets:* While blended fuels offer tremendous economic, environmental and energy benefits today, our future energy security may well depend on our ability to encourage the increased use of replacement fuels in neat alcohol and natural gas vehicles in the years ahead. S. 1178, the Alternative Fuels Incentive Act of 1991, introduced by Senator Rockefeller, provides appropriate incentives at points critical to the establishment of an alternative fuels market.

The bill provides incentives for the purchase of alternative fuel vehicles by businesses and State and local governments. It provides a tax deduction to the ordinary

consumer for purchase of alternative fuel vehicles for personal or business use. And it provides tax incentives for the installation of fuels equipment for alternative fuels at service stations and elsewhere.

We are confident that because of the work of the South Dakota Corn Growers and others that have long recognized the tremendous advantages of E-85, ethanol may someday be used more widely as a replacement fuel. S. 1178 may make that day a reality and we encourage its adoption by this Committee.

4. *Increased Research and Development:* As we enter the next stage in the development of the domestic ethanol industry, second generation plants will be built and new technologies utilized if ethanol is to stay competitive with other oxygenates. There are a number of new technologies which merit further research to determine their feasibility in ethanol production. The Congress, through research and development programs, could be very instrumental in helping these technologies move forward. Projects which should be considered for funding include:

- Develop a microorganism which will produce more ethanol or other fuel materials and less CO_2 per weight of dextrose utilized. With yeast, the theoretical alcohol yield is approximately 51%, and 49% CO_2 of the weight of starting dextrose. If one could get all alcohol and no CO_2, the cost of ethanol would be equal to gasoline. Any increase in ethanol yield and decrease in CO_2 yield would be a major benefit;
- Develop an efficient process to convert cellulose and hemicellulose in corn hulls into ethanol;
- Develop lower cost methods, such as membranes, to concentrate the alcohol from 10-12% up to 190 proof; and
- Genetically improve yeasts to be immune to lactic contamination (to reduce sterility requirements), thermo- and osmo-tolerant strains (to allow higher temperature operation and reduce contamination and cooling water requirements).

5. *Federal Procurement of Ethanol Blends:* As you may recall, in the early '80's the Congress authorized the Department of Defense, which buys gasoline for all federal agencies, to purchase gasohol "to the maximum extent possible and consistent with overall defense needs and vehicle management practices (P.L. 97-295). In fact, all federal agencies are currently required to use ethanol blends whenever reasonable to do so unless exempted.

Unfortunately, these exemptions are apparently being abused. A recent government investigation concluded that only two percent of the 32,000 USDA vehicles are complying with a department-wide directive that ethanol-blended fuels be used instead of gasoline.

In order to demonstrate real leadership on alternative fuels, the federal government should require that DoD purchase ethanol for fleet vehicles even if the agency doesn't specifically request it. In addition, the Department should review all of the exemptions from the requirements which have been granted and remove any unnecessary or outdated exemptions. Many of the exemptions were granted in the early days of ethanol blends usage before manufacturers had determined that their use does not harm vehicles.

In fact, an amendment sponsored by Congressmen Byron Dorgan (D-ND) and Dick Durbin (D-IL) was approved by the House of Representatives several weeks ago which would require the Department of Defense to make the appropriate changes to its procurement practices. The Renewable Fuels Association commends their efforts and strongly urges the Senate to follow suit. While phasing in the use of replacement fuel vehicles for fleet use is certainly a necessary step, the federal government should take the first step and become the nation's leader in the use of gasoline/alternative fuel blends for the fleet of vehicle in operation today.

CONCLUSION

In summary, these options would have a tremendously positive impact on the production and use of ethanol blended gasolines, and should be considered as part of a national strategy to increase the role of alternative fuels in the U.S. transportation fuel market:

- Re-establishing an Investment Tax Credit for the construction of new ethanol production capacity;
- Measures to assure fair competition among oxygenates, including clear gasoline and nondiscriminatory pump labeling language;
- Incentives for Alternative Fueled Fleets;
- Increased funding for ethanol-related Research and Development programs; and
- A requirement for government fleet vehicles to use ethanol-blended gasolines at all times without exception, while phasing-in the use of replacement fuels such as E-85.

This Five Point Plan recognizes the potential benefits of blending alternative fuels such as ethanol with gasoline, and will result in tremendous growth for all alternative fuels by creating incentives for increased ethanol production and market opportunities for replacement fuels in fleets, for blends in the existing gasoline infrastructure, and ethers as gasolines are reformulated to reduce pollution.

Thank you.

PREPARED STATEMENT OF TIMOTHY E. WIRTH

Mr. Chairman, thank you for your kind invitation to testify this afternoon.

I come before you not as an expert on all of the nuances of the Federal tax code. In this regard, you and your colleagues on the Committee are far more qualified than I. Rather, I come here as one who deeply believes that we need a new long-term, comprehensive energy policy. And I am here as someone who has just spent five months agonizing over the development of energy policy in the Senate Energy Committee.

It was an excruciating process we went through, not only because crafting energy policy tends to crack over regional and political fissures, but also because a truly comprehensive national energy policy must be comprised of literally hundreds of individual measures. There is no single step we can take to reduce our growing dependence on foreign oil, reduce environmentally harmful emissions and create an energy policy that looks to the future. There is no silver bullet.

That is why your hearings today are so important. It is absolutely imperative that we craft truly comprehensive energy policy—and necessarily that means we have to look at the power of finance and at the market forces that effect dramatically the direction of our energy future.

Looking toward that energy future, I believe we should follow four guiding principles. First, our energy policy—regulatory and tax—must give priority to energy conservation and efficiency. Energy efficiency is good energy policy and good economic policy. It is also good environmental policy, which should be the second guiding principle for the energy strategy we develop in the Senate. Energy and environmental policy are inextricably linked—from clean air and acid rain to the motherlode environmental issue of this decade and the next century—global warming. We simply cannot continue to avoid the environmental imperatives that are staring at us plain as day.

In the effort to craft an environmentally sound energy strategy, our third guiding principle must be emphasis on the development of alternative fuels. Alternative fuels in transportation, such as natural gas and ethanol, to alternative sources of energy, such as solar, wind and biomass should be the centerpieces of an energy strategy that is designed to provide a new direction for our children—a shift from the century-old petroleum age. And that leads me to the fourth principle that should guide our policy—the realization that we cannot produce ourselves out of the bleak energy forecast that looms before us.

We are now more than 50 percent dependent on foreign oil. Our energy consumption began growing late in the 1980s for the first time in 15 years. Greenhouse gas emissions of carbon dioxide are estimated under the Administration's National Energy Strategy to increase by 15 percent in the next 10 years. Why? Because no matter how much energy we produce domesticaly, our ever-increasing demand will require, according to current projections, more and more energy—particularly oil.

That is not to say that there is no place for new oil and gas production. Indeed, we can do quite a bit in the lower-48 by giving tax incentives to domestic producers for squeezing more oil out of existing wells. I hope the Committee will consider holding some additional hearings on oil and gas incentives that could help us produce more oil than we could ever produce in the Arctic Refuge or off the coasts of California and Florida.

Based on these principles: conservation; long-term thinking; alternative energy; and recognizing that we cannot produce our way out of the problem, the essential ingredients of a national energy strategy become clear. In the Energy Committee, we were successful at incorporating many of those concepts in the bill we reported last week. It is not a perfect bill, far from it. In many ways, your deliberations on this Committee could improve it substantially.

In the area of renewable energy, we have an opportunity to enact a version of the excellent production tax credit initiative that was in the National Energy Strategy before the White House chopped it up. Fortunately, Mr. Chairman, you and Senator Grassley have picked up the shredded pieces of the Department's proposal and introduced an excellent bill to encourage the development of large-scale solar, wind

and geothermal energy plants. This proposal is well-conceived—with attention given to the production end of renewable energy, and to ensuring that we do not promote fly-by-night operators who are interested in ripping off consumers—and in so doing rip off the future of renewable energy as well. These scams probably set back our solar program a decade in the early 1980s with the residential energy tax credits.

At the same time, we must recognize that the renewable energy production tax credit is not aimed the one segment of the power generation industry that is growing most rapidly—peak power facilities. The production tax credit is weighted more toward baseload facilities because the credits will probably only make sense for large power plants. To ensure the continued development of renewable peak power facilities, we need to extend the business energy tax credit for solar and geothermal energy. These investments are sound, made in the commercial sector with great care and attention to reliability—if you have any questions about the success of these facilities, you should visit the LUZ solar energy plant in the California desert. The Luz plant produces more than 300 megawatts of reliable energy to Southern California Edison.

The President has recommended that we extend this credit for another year, as Congress has traditionally done for the last several years. Let's stop that yearly ritual and extend the credit for five years and give investors the confidence they need to develop renewables.

Finally, Mr. Chairman, experts in the industry have spoken very highly of your proposal to allow the business energy investment tax to be used as an offset to either the regular tax or the alternative minimum tax.

Turning to conservation, which you will be addressing in part today and continuing on tomorrow, I want to make a few brief points and highlight some unique proposals in my energy bill.

On the issue of utility rebates, Mr. Chairman, we are almost in total agreement on the importance of extending the provision of the National Energy Conservation and Policy Act that excluded from gross income rebates from utilities to homeowners for energy conservation improvements. This exclusion should be extended as well to commercial and industrial rebate programs where big energy savings can be realized. And those of us in the West, where water runs uphill after money, feel strongly that the proposal should include water utilities and rebates for water conservation measures.

There are now 500 utilities with more than 1,300 demand-side management programs across the country. Together, they are investing $1 billion in energy conservation. We need to be encouraging these programs—together they have reduced the need for 20 large power plants.

There also are a variety of proposals before the committee to eliminate what has to be one of the most absurd policies on our books. The policy which allows employer-provided parking to go untaxed as income, and which taxes employer provided mass transit vouchers and rebates. It runs counter to everything we want to be doing in terms of reducing congestion, reducing our dependence on foreign oil, reducing greenhouse gas emissions and reducing commuting by individuals. It is also a very regressive policy in that it rewards top-dollar executives who can afford to pay for parking over other employees who are trying to save money and use mass transit.

We know that charging market rates for parking reduces commuting by up to 20 percent. The current system is one of the unintended ways that our laws and regulations run counter to so many of our public policy objectives. It should be changed.

Finally, let me touch on two proposals in my energy legislation that are rather unique to the energy tax proposals that have been introduced in Congress.

First, I have included in my bill a proposal that would provide a tax credit for energy efficiency measures taken by owners of oil heated homes. Unlike the vast majority of Americans, these homeowners do not rely on a utility for the provision of their home heating needs. Instead, they are served by a supplier of home heating oil—who benefits from increased sales. Just as we want to encourage efficiency with the utility rebate proposal, so too should we be looking to oil-heated homes.

There are more than 12 million homes in the United States that heat with fuel oil. In most cases, these homes were constructed prior to the adoption of energy efficient building techniques. For example, only 5 million oil-heated homes use high efficiency flame retention burners.

The Alliance to Save Energy, which I chair with Senator Jeffords, has conducted field tests which demonstrate that simply installing a high-efficiency burner can reduce heating costs by 16 percent. Other steps, like better insulation, better windows, water heater wraps and the like, can yield even further savings.

We used to have a similar provision in the tax code that provided a tax credit to all homeowners that undertook qualified energy efficiency measures. The old law allowed a maximum credit of $300. My bill would provide a much smaller credit to a much smaller universe of homeowners. Under my proposal, owners of oilheated homes would be eligible for a $100 tax credit for expenditures on oil retrofit measures such as flame retention burners; automatic thermostat controls; better windows and water heater wraps. with Upon further review, I recognize that there were some problems my initial proposal in that it would allow credit for the full value of some of the qualified expenditures. Instead, I would urge the committee to adopt my proposal with the following change—allow a credit worth 20 percent of the expenditure, with the credit limited to $200 per household.

An oilheat tax credit is a very cost-effective way for the federal government to help reduce oil use. On average, each homeowner that takes advantage of the credit will cut their oil use by 20 percent—about 130 gallons per year. If every homeowner took advantage of this credit, we could reduce oil imports by 37 million barrels per year.

We can also send the right signals in the transportation sector if we focus on an idea that I worked on for many years with our good friend, your late colleague on this committee, John Heinz. We developed a proposal that would have rewarded purchasers of energy efficient vehicles (gas sippers) and penalized consumers of the most inefficient vehicles (gas guzzlers).

This idea was one of the most exciting proposals in *Project 88* a public policy study Senator Heinz and I sponsored to develop new, market-oriented approaches to environmental protection. In the spirit of *Project 88,* our proposal would send a better signal to the marketplace about the priority we give to energy efficiency. Those who dislike regulatory approaches to auto fuel efficiency should get behind this proposal. And those, like me, who strongly support an aggressive CAFE program should also recognize that the gas-sipper rebate program is a natural complement to our CAFE goals.

This year, Senator Heinz and I worked together to modify our proposal to address concerns expressed by the Department of Transportation and others who argued that efficient cars are unsafe cars. We call our proposal DRIVE SAFE. Under our legislation, rebates and taxes are calculated on the basis of a vehicle's energy efficiency and safety performance within its size class. We take a 12-month average fuel efficiency for the preceding year, as well as a safety factor determined from national crash test data, and calculate rebates and taxes that consumers are awarded or levied according to the automobile they purchase.

In this way, we are encouraging both efficiency and safety. For example, a consumer who goes to the car lot and buys a highly efficient and very safe automobile would be given a significant rebate. Conversely, an individual who purchases an inefficient and unsafe vehicle will be taxed heavily. That is good energy policy and good transportation policy. This proposal is also revenue neutral in that the taxes and rebates are in balance—and administrative costs are accounted for by adding 1 percent to the neutral point.

In conclusion, Mr. Chairman, let me extend my sincere thanks for letting me share my views this afternoon. More importantly, I want to congratulate you and Senator Grassley for the leadership you have demonstrated in taking on these issues. Many of the proposals I have discussed are embodied in legislation you have introduced already. I urge you to consider those that I have raised in my testimony. But I am not married to any specific language. I simply believe that we need to get a package of energy tax items out of this Committee and incorporated into the overall strategy the Senate crafts for the nation's energy policy. Many of the proposals come at little or no cost to the Treasury. And depending on how you structure it, all of these initiatives could be financed by the employer-provided parking provision.

Undoubtedly, you will get expert testimony later today and' tomorrow that will further improve my suggestions. Your leadership in holding these hearings and taking on these issues cannot be improved. Thank you very much, I am pleased to be here today.

PREPARED STATEMENT OF JOHN YINGLING

Good morning. My name is John Yingling and I am Director of Business Management at Capital Cities/ABC, Inc. I also am a member of the Board of Directors for Commuter Transportation Services, Inc., which is the oldest and largest commute management company in the nation. CTS helps major public and private employers, at more than 3,700 individual sites across Southern California, implement strategies

that encourage such alternative commute modes as mass transit, car and vanpooling, and variable work schedules. In this regard, I urge your support of S. 26, sponsored by Senator Daniel P. Moynihan.

Perhaps business has the largest stake in current efforts to improve mobility in Southern California. After all, our bottom line depends on a mobile workforce, and efficient delivery of goods and services. Mobility is the lifeblood of any economy. Just as the body's circulatory system must work if a person is to survive, so must a transportation system if an economy is to survive. However, in Southern California, it seems our vigorous economy may have choked the very transportation system that was built to promote growth.

Our transportation system isn't the only thing choked up. Vehicle emissions are the single largest source of smog in Southern California, so it should be no surprise that we have the worst air quality in the nation. In response, local, regional and state agencies have implemented programs to mitigate traffic, the most ambitious and far-reaching of which is the South Coast Air Quality Management District Commuter Program, officially known as Regulation XV. Regulation XV requires employers with more than a hundred workers at a single work site to develop and implement a plan that decreases the number of single occupant vehicles that arrive at the work site each morning. Employers who fail to submit a plan may be fined $25 a day and face imprisonment.

The goal of Regulation XV is to increase the average vehicle ridership—or AVR—from the current 1.1 persons per vehicle to 1.5 in suburban areas and 1.75 in the central business district. To put this into perspective, an employer who is trying to achieve a 1.5 AVR who has 500 employees must have about half of its employees use rideshare alternatives. That requires a significant amount of effort from both employers and employees. And to show how much of its resources business has committed, in 1985, major employers in Southern California spent an average of less than $5 per employee per year for ridesharing. Today, these same companies are spending between $50 to $200 per employee per year. While much of this increase has come as a result of air quality regulations, it is an example of how business can contribute to the mobility solution, and our efforts are paying off.

As we know, tax policy is a particularly effective method of affecting behavior, and elements of federal tax policy actually encourage commuters to drive alone by fully exempting the value of employer-provided parking at the worksite, which in many urban areas can be as high as $300 per month. On the other hand, an employer can provide only up $15 per month toward a mass transit subsidy, and if the threshold is exceeded then the entire subsidy is taxable.

Moreover, employer-provided carpool and vanpool subsidies are fully taxable.

Not only does this policy undermine efforts to reduce traffic congestion, air pollution, and wasteful energy consumption, but its inconsistency discourages corporate initiative, and represents a regressive distribution of employee benefits. Particularly in urban central business districts, those earning below average wages are most likely to use transit and least likely to benefit from a parking subsidy, usually the only commute benefit employers provide.

As I mentioned, business is already assuming a larger responsibility for the commute trips they generate, and I call on Congress to create an environment that supports our efforts. I'd like to share some examples of employers who successfully sponsored rideshare programs despite federal tax policy.

Beginning in August 1990, a large company specializing in computers provided cash incentives to employees who rideshared or used mass transit. Their program caused 30 percent of their 1,500 employees located in downtown Los Angeles to use some sort of alternative to the single occupant vehicle to commute. To achieve regional air quality mandates, they increased their incentives and now have nearly half (48 percent) of their employees rideshare at least one day per month. They still provide free parking—they just made ridesharing and mass transit more attractive and achieved impressive results.

Since 1974, P.L. Porter, a mid-size manufacturing firm specializing in precision machinery, has been committed to ridesharing. Originally, its rideshare program helped employees adjust to its move to the west San Fernando Valley from west Los Angeles. Since then, they have achieved a 1.88 AVR with a program that includes covered parking for carpools and vanpools, lockers and showers for those who walk or bicycle to work and mass transit subsidies. Their mass transit subsidies do not exceed $15 per month so as not to add additional tax liability to their employees. P.L. Porter was also a founding member of the Warner Center Transportation Management Organization, a group of employers who combined their resources to provide commute services to more than 35,000 employees at one of the largest industrial parks in Southern California.

Sheppard, Mullin, Richter, Hampton, a law firm located in downtown Los Angeles provides in lieu of parking a transportation allowance ranging from $100 to $125 depending on the employee's mode choice. They also combined their resources with other employers in the Bunker Hill area to sponsor a buspool program. Sheppard, Mullin spent approximately $100,000 to implement their Regulation XV program, which is far less than what they would have spent providing parking for each employee.

The Los Angeles Department of Water and Power, sponsors 110 vanpool carrying more than 1,100 employees. DWP estimates its vanpool program conserves more than 800,000 gallons of gasoline and prevents more than 437 tons of pollutants from contaminating the air each year. Unfortunately, vanpool benefits are taxable.

Business understands that it must play a role in resolving air quality and mobility problems. A lot has already been done. In fact, our recent survey found companies targeted by Regulation XV have a higher ridesharing rate than unaffected companies. Congress must do more than just mandate clean air or free-flow traffic, it must support the efforts of the business community and to work with us rather than against us. I urge your support of S. 26. Thank you.

COMMUNICATIONS

STATEMENT OF FRIENDS OF THE EARTH

INTRODUCTION

Friends of the Earth U.S. along with 43 affiliate organizations around the globe works to influence public policies and attitudes on a wide variety of environmental and energy issues. Originally founded in 1969, Friends of the Earth merged in 1990 with the Environmental Policy Institute and the Oceanic Society. On behalf of our 50,000 members and supporters in this country, we commend the Committee for holding these hearings and the leadership of Chairman Daschle.

Recognizing the tremendous impact the tax code has on individual and business decision making and investment, Friends of the Earth recently established an environmental tax project to advocate for "green" changes in the tax code. We believe that the tax code provides a valuable tool to efficiently and effectively reward environmentally sound behavior and discourage environmentally destructive activity.

Perhaps the greatest opportunity for application of the tax tool to influence environmental behavior is in the area of energy policy. Currently, the tax code heavily encourages reliance on well-established and environmentally harmful energy sources: oil, coal, and nuclear energy. At the same time, it provides very little support to environmentally superior alternatives: efficiency and conservation practices and responsible renewable energy sources and alternative fuels.

Beyond the energy incentives discussed in these hearings, the Committee might consider exploring the topic of environmental taxes in general. Areas that might be examined include agricultural practices, land use, transportation, and use of virgin materials as well solid waste disposal.

Taxing activities and products that pollute, deplete natural resources, or otherwise degrade the environment achieves a number of goals. Environmental taxes offer an efficient means to ensure that environmental costs are born by current producers and consumers, not neighbors or future generations.

Particularly important to this Committee in a time of budget deficits is the tremendous revenue potential that green taxes, particularly energy taxes, provide. Furthermore, they offer a way to raise revenue that taxes undesirable behavior, pollution and depletion of natural wealth, rather than the desirable activities, work and saving, that our current system does. Green taxes, then, tax "bads" rather than "goods."

THE ROLE OF TAXES IN ENERGY POLICY

As the Senate nears debate over National Energy Strategy legislation, it is important for this Committee to determine what its role should be. Many Members have stated that the United States needs a long-term energy strategy that not only protects our national security but safeguards our environment and boosts our economy. Such a strategy would stimulate conservation, efficiency and renewable energy development while decreasing our reliance on traditional, nonrenewable energy sources whose ecological costs are immense.

The single most effective way to achieve all these goals is full social and environmental cost pricing. In other words, where the market fails to include the costs of environmental degradation, natural resource depletion, detrimental health effects, and other so-called negative externalities, price corrections are needed to achieve the most desirable mix of energy sources. Taxes offer an efficient way to remedy the market's failure to value environmental goods.

Many European countries, for example, have much more energy efficient economies than the United States, not because they have a range of tax incentives for

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Friends of the Earth U.S. along with 43 affiliate organizations around the globe works to influence public policies and attitudes on a wide variety of environmental and energy issues. Originally founded in 1969, Friends of the Earth merged in 1990 with the Environmental Policy Institute and the Oceanic Society. On behalf of our 50,000 members and supporters in this country, we commend the Committee for holding these hearings and the leadership of Chairman Daschle.

Recognizing the tremendous impact the tax code has on individual and business decision making and investment, Friends of the Earth recently established an environmental tax project to advocate for "green" changes in the tax code. We believe that the tax code provides a valuable tool to efficiently and effectively reward environmentally sound behavior and discourage environmentally destructive activity.

Perhaps the greatest opportunity for application of the tax tool to influence environmental behavior is in the area of energy policy. Currently, the tax code heavily encourages reliance on well-established and environmentally harmful energy sources: oil, coal, and nuclear energy. At the same time, it provides very little support to environmentally superior alternatives: efficiency and conservation practices and responsible renewable energy sources and alternative fuels.

Beyond the energy incentives discussed in these hearings, the Committee might consider exploring the topic of environmental taxes in general. Areas that might be examined include agricultural practices, land use, transportation, and use of virgin materials as well solid waste disposal.

Taxing activities and products that pollute, deplete natural resources, or otherwise degrade the environment achieves a number of goals. Environmental taxes offer an efficient means to ensure that environmental costs are born by current producers and consumers, not neighbors or future generations.

Particularly important to this Committee in a time of budget deficits is the tremendous revenue potential that green taxes, particularly energy taxes, provide. Furthermore, they offer a way to raise revenue that taxes undesirable behavior, pollution and depletion of natural wealth, rather than the desirable activities, work and saving, that our current system does. Green taxes, then, tax "bads" rather than "goods."

THE ROLE OF TAXES IN ENERGY POLICY

As the Senate nears debate over National Energy Strategy legislation, it is important for this Committee to determine what its role should be. Many Members have stated that the United States needs a long-term energy strategy that not only protects our national security but safeguards our environment and boosts our economy. Such a strategy would stimulate conservation, efficiency and renewable energy development while decreasing our reliance on traditional, nonrenewable energy sources whose ecological costs are immense.

The single most effective way to achieve all these goals is full social and environmental cost pricing. In other words, where the market fails to include the costs of environmental degradation, natural resource depletion, detrimental health effects, and other so-called negative externalities, price corrections are needed to achieve the most desirable mix of energy sources. Taxes offer an efficient way to remedy the market's failure to value environmental goods.

Many European countries, for example, have much more energy efficient economies than the United States, not because they have a range of tax incentives for

efficiency and conservation, but because they have realistic energy prices due to high energy taxes.

Without corrective steps to move us toward energy efficiency and increased reliance on renewables and away from artificially cheap energy, we must accept increasingly high levels of energy use, growing difficulty in securing clean air and efficient transportation systems, rising oil imports and a persistent trade deficit.

The Finance Committee, then, has a number of options. It can choose to continue its substantial subsidies to fossil fuels and nuclear energy and take compensatory steps to foster conservation, efficiency, renewable energy, and alternative fuels. It can move to eliminate current subsidies, thereby allowing the market to determine the energy mix, as the Administration purportedly supports. Or, it can be bold and phase in full social and environmental cost pricing. European countries offer models and experiences from which we can draw. Many have hefty gasoline taxes. A few have begun to implement carbon taxes.

Whatever course the Committee chooses, be forewarned that the status quo jeopardizes our long-term energy security as well as our environment. It is foolish to continue to provide tax subsidies to mature, non-renewable energy industries while denying assistance to infant industries that promise clean, renewable, and domestically-supplied energy. For without help to fully commercialize the industry, America's capability to provide competitive renewable technologies—technologies on which we may one day depend—will be lost. Let us not squander this very vital energy sector. Semiconductors and VCRs were once ours too.

LEGISLATIVE PROPOSALS

In the absence of more basic "green" changes to the tax code, Friends of the Earth strongly supports a comprehensive set of energy tax incentives, such as that introduced by Senator Wirth in S. 743, to promote conservation, efficiency, and environmentally sound renewable energy sources and alternative fuels.

Transportation

Perhaps the most palpable example of the tax code's contradiction with national environmental goals is the strong incentive it provides to commute by automobile rather than by cleaner, safer, more efficient, alternative modes of transportation. Reversing commuting incentives would reap many benefits: less congestion, cleaner air, fewer accidents, less energy consumption, and less stress.

Friends of the Earth strongly endorses preferential tax treatment for commuting by mass transit or van pools. We also encourage the Committee to provide incentives to those who bicycle to work. In addition, the Committee could allocate one percent of Highway Trust Fund monies to finance bicycle paths and other measures to assist and encourage bicycling.

Raising the tax-free benefit for mass transit and van pools could be financed by either a tax on employers based on the total cost of the parking benefit they offer or by an excise tax of a few dollars on each parking space.

We also support a graduated increase of the gas guzzler tax coupled with a tax credit for purchase of fuel-efficient automobiles, as suggested by Senator Gore. However, we emphasize that although gas guzzler/gas sipper feebates should stimulate the purchase, and thus production, of more fuel efficient vehicles, the price of gasoline is the most important impetus for energy conservation.

Energy and Water Conservation

Friends of the Earth also urges the Committee to overturn the Internal Revenue Service ruling that makes utility rebates over $600 to consumers for energy and water conservation and efficiency improvements taxable. We believe that the conservation and efficiency benefits are well worth the few dollars in lost revenue to the Treasury, if not for the actual energy and water savings then for the conservation message it sends to consumers.

We recommend that the Committee pass legislation, like that offered by Senator Symms, to permit tax-free rebates for gas and water as well as electric power conservation to both residential and commercial/industrial consumers. For those consumers who rely on fuel oil, we recommend that the Committee adopt a tax credit for the retrofit of residential oil heaters such as that suggested by Senators Wirth and Specter.

Renewable Energy

Finally, Friends of the Earth supports a comprehensive, long-term set of tax credits for investment in and production of responsible renewable energy, particularly

solar and wind. We endorse S. 1157, which applies business energy tax credits to the Alternative Minimum Tax.

STATEMENT OF THE NATIONAL CONCRETE MASONRY ASSOCIATION

Mr. Chairman, I am submitting testimony today on behalf of the National Concrete Masonry Association (NCMA). My organization represents the interests of concrete construction products manufacturers across the nation. NCMA also acquits its responsibilities to the construction industry by helping develop and promote energy efficient products, designs and methods to improve energy efficiency in buildings.

Energy efficiency in buildings must be a priority matter in any legislation meant to control America's expanding demand for energy. More than one-third of all the energy consumed in the United States is consumed in buildings, chiefly for environmental control, lighting, appliances and more. Even small incremental improvements in energy efficiency will yield large energy savings if applied nationwide, or in areas where climatic conditions are most conducive to better energy management.

It is well known that during the past decade, great strides have been made in improving energy efficiency of electrical appliances and lighting. What is much less well known is that there has also been much progress on improving the energy efficiency of building materials comprising the structural envelop of buildings. Such shall be the focus of this testimony. NCMA requests that the Subcommittee give careful consideration of tax incentives to promote the use of energy efficient building materials and designs in new construction.

PEAK LOADS

One of the great challenges we face in curbing America's growing need for energy production is to moderate energy consumption during the peak demand times of the day. Peak consumption, or peak loads, usually occur during the late summer afternoon hours when air conditioning/environmental control systems are in highest use. Less frequently, peak loads are also occurring on some very cold days, too.

It is the increasing peak load demand during those few hours that creates the need for increased energy production, and which incurs the financial, environmental and energy trade costs associated with increased energy production capacity. Ever higher peak loads may be expected as the economy expands and construction of new buildings creates new environmental control demands.

A key to this problem is to promote construction strategies and materials designed to mitigate peak loads, both by reducing energy consumption and by shifting peak loads to off-peak times.

THERMAL MASS, AND PEAK LOAD SHIFTING TO OFF-PEAK PERIODS

Thermal mass describes the physical heat-transfer properties of high-mass, high-density construction materials. A building constructed with high-mass materials has a different profile of energy usage than other structures. The reason is that over the course of a day, the walls of a high-mass structure tend to absorb heat energy from the sun rather than pass it through to the interior air. This retards the flow of heat energy into the building.

Heat energy will eventually be transmitted through the sides of the high-mass structure, but it will occur later in the day, after the peak demand period. This is referred to as peak load shifting. Also, part of the energy stored in the walls during daylight hours will be released out the exterior of the building during the cooling hours after the sun goes down. Also, the low-cost excess energy generated at night may be used to cool or heat the walls in preparation for the next day. Therefore, the beneficial effects are two-fold: the heat energy that does reach the interior spaces does so later in the day, reducing the need for energy during peak periods, and some of the heat energy will never reach the interior spaces, but will instead be irradiated outside during night hours.

Peak load shifting in the manner described above does not require years of research and development to provide benefits. It uses off-the-shelf technology and readily available construction materials that have been in wide use for decades. Some examples of high-mass construction materials that are highly effective in peak load shifting are concrete construction materials of all types; also, log homes have sufficient wall density to be highly effective. Adobe and other earthen materials work quite well.

It is a technique used today in some parts of the country, primarily in the American southwest. A pilot program conducted in Arizona (known as the Salt River Project) during the mid-eighties demonstrated the effectiveness of thermal mass and peak load shifting. Various thermal mass designs were tested and evaluated. Substantial energy savings per house were achieved and energy cost savings of hundreds of dollars per year per house were realized. We may anticipate that the success of this pilot program will lead to other peak load shifting programs throughout the country.

The large-scale benefits of expanded reliance on peak load shifting using thermal mass are varied and substantial. Better peak load control and the reduced need for greater energy production capacity will have a favorable impact on environmental concerns and on the nation's energy security, and provide savings for utilities, investors and customers. Greater access to off-peak pricing means the per unit cost of energy will be lower for thermal mass users. Increased use of thermal mass techniques can be accomplished at relatively low cost and can be begun quickly. Thermal mass is useful across the country, but due to climatic and geographical factors it is especially effective in southern and western parts of the country where population expansion and new construction are expected to be the highest in coming years.

ENERGY TAX POLICY INCORPORATING THERMAL MASS

Mr. Chairman, any tax bill that provides energy efficiency incentives should consider the impact of building technologies such as the use of thermal mass to shift peak loads to off-peak periods. Legislation that focuses exclusively on aspects such as appliances or insulation will tend to shift resources toward those measures and away from techniques such as thermal mass, a significant unintended result. The recommendations appearing below are intended to maintain a level playing field among the various materials and strategies the Subcommittee may consider for preferential tax treatment.

The easiest and most efficient way to incorporate thermal mass techniques in a structure is during the design and construction phase; retrofitting existing structures is far more difficult. Therefore, targeting incentives to affect new construction is the most feasible option.

Thermal mass techniques need appropriate tax incentives to be more readily incorporated in construction practices. Thermal mass does not allow for standardized measurement of energy conservation in the same way that insulation R-ratings or appliance ratings allow. Recognition in the tax code of the importance of other energy efficiency techniques excluding thermal mass would discourage the use of thermal mass, regardless of the long-term benefits thermal mass would obtain.

Also, some additional cost may be required to incorporate thermal mass techniques in new construction. Market forces are such that special added-cost features like thermal mass are rarely used unless there is a financial incentive to do so, regardless of the policy impact. Considering that each new building will affect the nation's energy consumption for the next fifty years or more, it is in the nation's interest to provide tax incentives encouraging the incorporation of thermal mass techniques in new construction from the ground up.

Given these considerations, NCMA recommends that the Subcommittee take into account the following considerations when drafting energy tax incentive legislation, and apply to both commercial and residential properties where appropriate:

a. Any provisions designed to remove from taxable income any energy conservation rebates paid by utilities to consumers should specifically include rebates awarded for savings due to thermal mass peak load shifting.

b. Any provisions designed to promote energy efficient mortgages should specifically state that costs incurred from installing thermal mass technologies and materials qualify for the more lenient mortgage benefits.

c. Any provisions allowing for tax deductions or accelerated depreciation for costs related to installation of energy efficiency measures in structures should specifically include recognition of thermal mass technologies and materials designed to shift peak loads to off-peak periods in the qualification guidelines.

Mr. Chairman, I appreciate this opportunity to communicate NCMA's views on this important tax initiative, and I look forward to working with you and your staff to incorporate these concepts in the legislation.

STATEMENT OF THE NATIONAL WOOD ENERGY ASSOCIATION

INTRODUCTION

The National Wood Energy Association (NWEA) is a national trade association that represents the industry which produces energy from various forms of biomass. Biomass can take a number of different forms (such as electricity, steam, industrial process heat, gaseous fuels, and liquid fuels), as can the kind of feedstock that comprises biomass (wood, manufacturing wood waste, downed forest trees and branches, forest plantation trimmings, agricultural residue, herbaceous crops, urban wastewood, the organic fraction of municipal solid waste, animal manure, and landfill gas).

NWEA s members of the biomass industry cover a broad spectrum of interests including: private woodlot owners, foresters (both public and private), harvesters, processors, manufacturers of direct combustion equipment, boilers, turbines, and generators, small entrepreneurs; public and investor-owned utilities, project developers, consultants, and fuel end-users. In the true sense, "wood energy" does not fully portray the range of interests or capabilities of the industry.

NWEA urges adoption of an expanded production tax credit which would apply to electricity, thermal, and liquid energy and include energy from wastewood and agricultural residues—provisions that none of the current production tax credit bills provide. We also support continuation of existing tax incentives such as accelerated depreciation for qualifying facilities, non-taxable bond interest for municipal revenue bonds used to finance qualifying facilities, the excise tax exemption for ethanol, the blenders tax credit, and the small producers income tax credit for ethanol.

The broad and diverse character of the industry goes a long way in explaining why biomass energy currently accounts for half of the total renewable energy produced in the U.S. or some 3.5 quadrillion Btu's (quads). For example, out of a total of 82 quads of energy produced in 1988 in the U.S., renewable energy contributed 6.71 quads, or over 8% of the total energy supply. Of this amount biomass accounted for almost 50%, supplying 3.27 quads or 4% of the total U.S. energy supply. This figure is estimated to be approaching 5% in 1991.

The U.S. Department of Energy's interlaboratory analysis of renewable energy's potential, prepared in 1989 by five national laboratories as part of the deliberations on the National Energy Strategy, conservatively projects as much as 12 quads of renewable energy could be on-line by the year 2010 under a "business as usual" scene rib. This could rise as high as 19.36 quads with an intensified R&D program and well over 20 quads if various market incentives, such as tax credits or production incentives, are provided to the industry. Assuming biomass continues to enjoy its current high rate of acceptance by the environmental community and concerns about global warming continue on the part of the public, the magnitude of its contribution to U.S. energy production could increase threefold over the next 10–15 years.

The key, of course, is whether adequate market incentives for the industry are put in place, and whether the price of fossil fuels and nuclear power will continue to enjoy an unfair advantage due to their enormous federal subsidies relative to renewables. The purpose of this hearing is to take another look at how this inequity can be addressed, so that the efficiencies of the marketplace can begin to take effect.

Even in today's market, renewable energy production (6.71 quads in 1988) already exceeds that of nuclear power (5.74 quads). Current electricity production costs of newly constructed utility-connected energy technologies show both similarities and dramatic differences between biomass energy and conventional fossil fuel and nuclear generated facilities. For instance, costs for biomass generated electricity (6 cents/kWh) is about equal to that of produced by conventional pulverized coal (6.3 cents/kWh) and a half to a third less costly than newly constructed nuclear facilities (12–18 cents/kWh).

These are strong market signals that the conventional ways of producing electricity may not only be more expensive but may have priced themselves out of the market when their adverse environmental consequences are factored in. These, of course, include the production by-products, such as sufur dioxide and nitrous oxide that cause acid rain and contributes to ground ozone, contaminated ground water from mine tailings, irreparable disturbance caused by strip mining, black lungs disease of miners, slag and radioactive waste disposal problems, national security costs (like those the U.S. has just incurred in the Middle East), and costly transportation and decommissioning costs.

Efficient biomass conversion processes also limit the release of organic compounds that produce smog. When produced on an environmentally sustainable basis, as the industry supports, biomass fuels, not only do not contribute to the growing concen-

tration of carbon dioxide to the atmosphere, but can actually contribute to its reduction where more feedstock is grown than is harvested. Biomass is the only renewable feedstock capable of replacing gasoline and other fuels in the transportation sector, particularly as we seek to meet the conformity provisions of the 1990 Clean Air Act Amendments. Biomass is also the only feedstock that can be converted into gaseous fuel through gasification processes and landfill methane recovery facilities. Finally, conversion of the current glut of mixed paper in the municipal solid waste stream, disposal of wastewood from construction and demolition sites, and disposal of moving pal lets offer three ways biomass energy production can reinforce the growing recycling ethic nationwide and deal with our growing shortage of landfill space.

Given this country's growing reliance on foreign oil (approximately 60%) and the fact that domestic production levels seem to have peaked in the early 1980's, it is critical that the federal government take appropriate action to lessen our economy's dependence on such insecure or dwindling sources. During the 1980's, as you well know, federal and state R&D funding and tax incentives were reduced—presumably because the earlier energy crises seemed to have disappeared. Let us hope we have learned a lesson over the past year that the challenge of developing secure, economic, and environmentally sustainable energy sources will be with us for the foreseeable future.

EXISTING PROVISIONS IN THE TAX CODE AFFECTING BIOMASS ENERGY

Existing incentives for the production of energy from biomass resources can be divided into three basic categories: "grand fathered" projects subject to the expired biomass business energy tax credit; biogasification facilities which qualify for the production tax credit; and, rapid depreciation on certain types of biomass conversion equipment.

The biomass business *energy tax credit* was analogous to the existing solar and geothermal business energy tax credits, which for biomass expired at the end of 1987 and which are due to expire for solar and geothermal on December 31, 1991. A few biomass projects placed in service after 1987, however, are still eligible for the credit for expenditures made through 1987.

Additionally, some facilities which convert biomass to a natural gas substitute are also eligible for the *nonconventional fuel production tax credit* which was granted for the displacement of oil, so long as the facility is placed in service by December 31, 1992. This two-year extension applies to gas sold from such facilities before January 1, 2003. NWEA supports a continuation of these provisions so that sound business planning and investment decisions can be made.

Rapid depreciation remains available to facilities which qualify as "small power producers" under Federal Energy Regulatory Commission standards (under 80 megawatts capacity), use biomass as fuel, and are not financed with tax-exempt debt. NWEA also supports continuation of this provision.

TAX INCENTIVES FOR BIOMASS ENERGY

As with most renewables biomass energy labors under a number of market constraints, not the least of which are high front-end investment and having to compete with highly subsidized competitors. Quite cost-competitive with fossil-fired technologies and nuclear power at 6 cents/kWh, biomass does not require investment tax credits to raise capital. It does require a stable market demand, however, before it can attract the level of capital needed to establish large-scale facilities.

The present producer credit is nontaxable and nonrefundable. It was designed to give taxpayers immediate value for their taxes in that it rewards those renewable technologies that actually produce fuel or energy; if the facility does not work, the credit cannot be taken. The is equal to $3.00 for the energy equivalent of a barrel of oil, or $3.00 per 5.0 million Btus and varies with the price of oil.

Because the biomass industry has reached a stage of maturity where it has the capability and can attract sufficient investment capital, its need for tax incentives necessarily shifts from investment to production. It has been obvious for some time that the existing production-based credit is inadequate because it is tied to an unrealistically low oil price that is not taking into account all the national security and environmental factors that it should on an otherwise level playing field.

One of the most promising ideas to remedy this situation broached in public debate has been a ten-year, 2.5 cents/kWh production tax credit. This concept grew out of the national hearings conducted by the U.S. Department of Energy for the formulation of the Administration's National Energy Strategy (NES). Although this concept lies somewhere on the Office of Management and Budget cutting room floor,

it attracted enough attention that a number of bills introduced in Congress this session. These include in the Senate S. 466, S. 661, S. 741, and S. 743 and in the House H.R. 1543. However, these bills are biased against biofuels in two ways.

While NWEA believes this approach is a step in the right direction, we do not feel that the production credit should only be tied exclusively to electrical generation. There are many other uses for use of fossil fuels in the commercial and industrial sectors for which renewables can be used, including steam generation, process heating, space heating, methane gas conversion, and the production of ethanol. Secondly, the proposals exclude production credits from electricity derived from wastes, and only allows energy from new crops. While NWEA does not propose allowing a production credit for municipal solid wastes facilities which combust other wastes besides those that are biodegradable, the industry indirectly supports a credit for electricity produced from wastewood and agricultural residues.

CONCLUSION

The energy tax credits were originally enacted to reduce this country's dependence on foreign oil. What has happened in the intervening years is that we were lulled into a false sense of security and "dropped our guard" in preparing our own defense. Had this country "stayed the course" toward energy independence begun in the 1970's, our recent intervention in the Middle East may not have been as critical to the U.S. economy as it was.

In short, one has to wonder how many times we must confront the same problem before we finally wake up. The various renewable technologies are in various stages of development and, as one might expect, require different solutions and economic solutions to get them "jump-started." For the biomass energy industry, a meaningful production credit, similar to the one DOE developed before it was dropped, would go a long way towards meeting its financial needs at this time.

STATEMENT OF THE NATURAL RESOURCES DEFENSE COUNCIL (NRDC) AND TRANSIT NOW

Mr. Chairman and Members of the Committee, thank you for holding this important hearing and for inviting the Natural Resources Defense Council to testify on conservation energy tax incentives and, in particular, on the federal tax policy for employer-provided parking and transit passes. I am Janet Hathaway, a senior attorney with the Natural Resources Defense Council (NRDC), a national, nonprofit organization of approximately 176,800 members dedicated to protecting public health and the environment through scientific research and legal advocacy. I am testifying on behalf of NRDC and Transit NOW, a coalition of which NRDC is a member. Transit NOW is comprised of over 178 national environmental organizations, corporations, electric utilities, labor unions, transit operators, disability groups, auto insurers, local chambers of commerce and other organizations. The members of Transit NOW have come together to support a major increase in federal funding for public transportation.

Mr. Chairman, tax law should not encourage people to act in ways that are against our national interests. The 1990 Congress must be commended for forging strong new legislation addressing a variety of air pollution problems afflicting this nation. However, there remain inequities in the tax law that operate to undercut the goals of the Clean Air Act Amendments of 1990.

Indisputably, automobile emissions are a significant source of air pollution, particularly in urbanized regions of this country. According to the General Accounting Office, the transportation sector accounts for two-thirds of emissions of carbon monoxide.[1] Forty-one areas in the U.S. exceeded EPA's health-based limit on carbon monoxide for 1988-89.[2] Over 100 cities exceeded the ozone or smog standard during the same period. To reduce the frequency and severity of dangerous pollution episodes, Congress has mandated areas not attaining the Clean Air Act standards to undertake systematic planning of transportation control measures to reduce emissions contributed by cars and other vehicles.[3]

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[1] General Accounting Office, Traffic Congestion: Trends, Measures, and Effects, GAO/PMED-98-1, November 1989.

[2] Environmental Protection Agency, "National Air Quality and Emissions Trends Report, 1989" p. 4-1.

[3] Clean Air Act Amendments of 1990, Pub. L. 181-549, title I 101(f), 42 U.S.C. 176.

According to the Union of Concerned Scientists, cars and light trucks are the transportation mode with the highest emission levels per passenger mile of nitrogen oxides, carbon monoxide, sulfur oxides and particulates. "In fact, a single-occupancy car emits twice as much NOx, three times as much CO_2, 10 times as much hydrocarbon, and 17 times as much CO as mass transit." [4] Nevertheless, approximately seventy-five percent of all Americans commute to work alone in cars or light trucks.[5]

Encouraging and supporting ride-sharing, carpools, and transit is a central goal of air quality and energy efficiency planning, at the metropolitan, state and federal level. Nevertheless, our federal tax code continues to encourage people to drive to work. The tax treatment of employer-provided transit passes and parking spaces rewards people for activity which is socially disadvantageous, and perversely discourages people from using buses, subways, rail or carpools which are both less polluting and more energy efficient.

"De minimis" fringe benefits are excluded from gross income for tax purposes. Department of Treasury regulations consider employer-provided public transit tokens, fare cards, and passes as "de minimis" fringe benefits only if their value is no more than $15 per month.[6] If an employer provides more than $15 per month in a transit pass, the entire value of the pass becomes taxable as income. Treasury is in the process of considering revising the $15 limit to $21 per month. While certainly a move in the right direction, the Treasury proposal is inadequate to rectify the glaring inequity between the treatment of employer-provided transportation subsidies and employer-provided parking.

The entire value of employer-provided parking located on or near the business premises is excluded from gross income for tax purposes. Current law does not limit the value of parking which employers can provide for employees. In New York City and other large urban areas, the value of parking may exceed $588 monthly. Consequently, the anomalous treatment of parking versus transit costs in the tax law greatly reduces the apparent cost of commuting to work by automobile. Because the immediate cost of driving is greatly reduced by the valuable parking subsidy, commuters who might otherwise consider using public transit or ride-sharing have a strong incentive to join the three-fourths of the population driving alone to work.

Paradoxically, the tax code's distorting effect on commuting behavior may be especially great in the very areas most plagued with gridlock and dangerous levels of air pollutants. If we can assume that the greater the value of an employer-provided benefit, the more likely are people to take advantage of the benefit, then the current tax treatment of parking and commuting costs is especially problematic for congested urban areas. The tax exemption for employer-provided parking is most valuable, and is therefore most likely to increase single-car commuting, in densely-developed, urban areas, where unsubsidized parking is scarce and therefore costly. Virtually all major metropolitan areas have significant air pollution problems which are exacerbated by motor vehicle traffic and congestion.

There are obviously many ways to ameliorate or eliminate the perverse effects of the different treatment afforded to employer-provided parking and commuting benefits. From an environmental and energy policy perspective, it is exceedingly difficult to justify retaining the tax code exclusion of the value of parking spaces provided to employees, while at the same time states and localities are desperately trying to cajole and induce commuters to share rides or use public transit. Studies have estimated the annual value of the federally subsidized employer-provided parking at $50 billion—more than double the annual cost of operating all of Americals transit systems.[7] NRDC supports repealing the tax exclusion for employer-provided parking. If the current favorable tax treatment for parking cannot be eliminated altogether, it should be restricted to parking spaces employers provide for vehicles primarily used for ride-sharing.

NRDC also supports providing a much higher or an unlimited exclusion for employer-provided transit passes, tokens or fare cards. Among the bills which have been introduced in the Senate this Congress which would reduce the disparity between the treatment of commuting benefits as compared to parking are S. 26,[8] S.

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[4] Gordon, Deborah, Union of Concerned Scientists, Steering a New Course: Transportation, Energy, and the Environment, 1991, p. 67.

[5] Gordon, op. cit. 1 p. 20.

[6] Joint Committee on Taxation, "Description of Proposals Relating to Renewable Energy and Energy Conservation Tax Incentives," June 11, 1991, p. 27.

[7] American Public Transit Association, "Issue Paper: Taxation of Employer Provided Transit Benefits," June 1991.

[8] Introduced by Senators Moynihan, Packwood, D'Amato, Kasten, DeConcini, Chafee, and Lautenberg.

129,[9] S. 741,[10] and S. 743.[11] NRDC commends the sponsors of all of these measures for taking steps to encourage the use of efficient transportation. However, the value of the transit pass benefit these measures would exclude from tax does not seem sufficient given current commuting costs. Because the monthly cost of commuting by transit in 71 of the nation 1s largest urban areas averaged $58 monthly, but ranged up to $100 per month,[12] NRDC believes that it is important to ensure that up to $100 monthly in employer-provided transit subsidies are treated as non-taxable benefits.

An innovative suggestion before the Senate at this time is S. 326, a bill introduced by Senator Specter. S. 326 would allow the employer deduction for parking provided to employees only when the employer allows employees to select in lieu of the parking subsidy either cash or a subsidy for transit, carpool or vanpool worth an equivalent amount. This approach gives employees considerable flexibility, and it is a great improvement over current law. However, it continues to provide a valuable federal subsidy for parking, even when the vehicle used routinely has only a single passenger. NRDC does not believe this policy sends the correct signal to commuters at a time when alternatives to single occupancy vehicle transportation are essential for air quality, energy conservation and more efficient mobility.

Mr. Chairman, NRDC commends you for convening this hearing and for requesting comment from NRDC and Transit NOW. We hope to continue working with all Members of this Committee, with staff, and with the full Senate to ensure that transportation incentives embodied in the tax code enhance energy conservation and environmental protection. Tax incentives should reward, not discourage, transit use. NRDC will be pleased to offer any assistance in supporting legislative reform which encourages shifts in transportation in favor of bus, subway, light rail, carpool, vanpool and other modes of transit.

Statement of Pacific Enterprises

Mr. Chairman and Members of the Subcommittee: Pacific Enterprises is a diversified holding company headquartered in Los Angeles, California, engaged in natural gas distribution through a regulated public utility, oil and gas exploration and production and specialty retailing.

UTILITY CONSERVATION INCENTIVES

Pacific Enterprises supports legislative efforts that would permit utility customers to exclude from gross income incentives provided by a utility to enhance energy conservation. It should be irrelevant for these purposes whether the incentive takes the form of a cash rebate, a discount on the purchase price of a conservation measure, a reduction to the cost of utility services or any other form of subsidy. It is critical, however, that only incentives provided to encourage the purchase or installation of energy conservation measures and which result in a reduction of primary energy consumption be eligible for the exclusion. It is energy conservation, not consumption, that is the intended result. Consistent with this goal, utilities and other qualified payors should be able to deduct the amount of the energy conservation incentives provided. There should be no difference in the tax treatment accorded a discount or reduction in the price of utility services versus a cash rebate.

There is also no reason why the tax exclusion for energy conservation incentives should be limited to electric utilities; c.f., S. 922 and Revenue Ruling 91-36. Pacific Enterprises contends that the exclusion should be made equally available to gas utility customers.

EMPLOYER SUBSIDIES FOR COMMUTING

As a large employer operating in the Los Angeles basin, Pacific Enterprises is critically aware of the commuting transportation needs of its employees and of the need to improve our air quality. Pacific Enterprises and its subsidiaries accordingly sponsor various programs for its employees to encourage the use of mass transporta-

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[9] Introduced by Senators Mitchell and Cranston.

[10] Introduced by Senators Wirth, Hatfield, Daschle, Jeffords, Bryan, Fowler, Bingaman, and Adams.

[11] Introduced by Senator Wirth.

[12] American Public Transit Association, "Average Monthly Commuting Cost By Public Transit," 1987. The survey covered cities with urbanized populations over 500,808 and accounts for more than 70 per cent of total transit ridership. The survey was computed from February 1, 1987 fare data. Fare increases have occurred in many metropolitan areas since 1987.

tion; e.g., a $15 per month (soon to be $21) excludable employer-provided mass transit subsidy and vanpools. Pacific Enterprises supports legislative efforts to increase the amount of the employer subsidy that can be excluded from an employee's gross income; e.g., S. 662, S. 741 and S. 743. The value of an employer-provided van, bus or other highway vehicle should also be excludable (as it was under the law as it existed before 1987) as there is no rational basis for distinguishing between these alternate forms of commuting.

Pacific Enterprises must also recognize that a substantial number of its employees must still drive to work. Parking is provided under a variety of arrangements in employer-owned and leased facilities. Pacific Enterprises supports retention of the current law working condition fringe benefit exclusion for employer-subsidized parking. Even during a period of energetic expansion of our area's mass transit facilities, employer-subsidized parking remains a material component of our compensation package. As a result, it would be inequitable to finance an increase in the mass transit subsidy solely at the expense of those employees in large metropolitan areas such as Los Angeles who utilize employer-leased parking facilities.

ALTERNATE FUEL VEHICLES

Pacific Enterprises joins with the American Gas Association and the Natural Gas Vehicle Coalition in support of the efforts undertaken by Senator Rockefeller in S. 1178 to encourage the purchase of alternate fuel vehicles and the installation of refueling station equipment. Pacific Enterprises subsidiary, Southern California Gas Company, and other California utilities are presently embarking on ambitious programs to introduce natural gas vehicles in their respective service territories. Tax incentives, including the ability to expense part of the initial expenditure for vehicles and attendant infrastructure, would greatly assist in these efforts. By lowering the initial price to acquire or convert a vehicle, it will be easier to penetrate the vehicle market and, thereby, assist in achieving our clean air and energy security goals.

STATEMENT OF THE SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION, INC. (SMACNA)

The Sheet Metal and Air Conditioning Contractors' National Association, Inc. (SMACNA) is supported by more than 5,000 construction firms engaged in industrial, commercial, residential, architectural, and specialty sheet metal and air conditioning contracting throughout the United States. SMACNA contractors employ hundreds of thousands of construction workers and have maintained a tradition and record of achievement in the promotion of energy efficiency and energy conservation in buildings and other facilities.

SMACNA supports S. 141 which would extend for five years the business energy tax credits set forth in Section 46 to the Internal Revenue Code for investment in solar energy technology. The legislation, if enacted, would permit the solar tax credits to be taken against the alternative minimum tax for those businesses subject to its provisions.

Enacting the credits for five years will provide a predictable investment environment for solar technologies in stark contrast to the year-by-year, stop-and-go legislating of solar tax credits in recent years. This will benefit businesses developing, marketing and purchasing solar technology as well as our nation's energy security. The five year federal commitment will also send a positive signal that alternative energy and energy efficiency will be a major cornerstone, if not the cornerstone, of our nation's energy policy for the future.

Prior to the Tax Reform Act of 1986, solar and other energy tax incentives provided a 15 percent energy investment federal tax credit to encourage investments in conservation and renewal energy technologies. Solar, wind, and geothermal property qualified for the 15 percent credit. Combined with generous state tax incentives and grants, solar and other energy efficient technologies were gaining consumer, research and development favor. Residential credits for conservation included a 15 percent credit up to $300 for conservation improvements while a 40 percent residential solar or geothermal credit was available up to $4,000. To raise revenues to pay for the 86 Act the solar energy tax credit was to be phased-out over a three-year period at decreasing rates: 15 percent in 1986, 12 percent in 1987 and 10 percent in 1988. In 1988 the 10 percent credit was extended until December 31, 1989. In 1989 the credits were extended until September 1990. In 1990 the credits were again extended through 1991. It is time to end the annual and unpredictable legislative environment surrounding the solar tax credits.

SMACNA applauds the proposed modification to current law in S. 141 where the credit may be taken against the entire regular tax and the alternative minimum tax. The law pertaining to the solar credits has failed to achieve its potential effectiveness due to the counter productive minimum tax liability for firms making solar investments. Congress should remove this and other tax barriers to small businesses improving their energy efficiency.

The solar tax credits are only a part of the necessary national investment in energy efficiency. Increased use of solar and other efficient heating and cooling technological systems and increased research and development in these areas will continue to drive down the cost of energy technologies. Further, these investments will improve the position of U.S. firms in the businesses of manufacturing, marketing and installation of energy efficient products. S. 141 is a private sector based initiative that will complement state and local energy efficiency incentives.

In summary, SMACNA supports S. 141 and other federal tax incentives and support for research, development and implementation of solar and energy efficient technologies. We urge passage of S. 141.

Thank you.

WELSH TECHNOLOGIES,
River Edge, NJ, June 20, 1991.

Re: Subcommittee Hearing on Energy Tax Incentives Hearing of 6-13 and 6-14-91.

Gentlemen: Our interest, as is yours, is in this nation, our children and the world at large; for the present and the future.

With the triumphant end of Desert Storm, attention is once again focused on domestic problems. Foremost on all our citizens minds is the economy, taxes and ecology. Now is the time for strong leadership to tackle these problems as we face a future of rising energy prices and damage of the ozone layer. We must now commit to alternate energy sources by slowly moving away from what we are accustomed to. Consideration to the resources at hand and the available network of distribution as well as American acceptance are highly important. Now is the time for all good men to look at our greatest God given gift in this country, American ingenuity.

Welsh Technologies, through ten years of development, has patented a Multi-Fuel System which can readily convert all existing and new vehicles of any class to operate on two fuels simultaneously. By using the basic principals of physics, American know-how, and utilizing the abundant readily accessible American resources, we have successfully developed a product that mixes propane with gasoline. The results are vehicles that have an 80% to 100% increase in fuel economy with a remarkable reduction (almost nil) of emissions. we simply have maximized the efficiency of the internal combustion engine.

The Welsh Technologies Multi-Fuel System can operate on propane, compressed natural gas, methanol, swamp gas etc. However why market a product to run on methanol when their is only a days supply of it in this country? Why use compressed natural gas when there is no place to buy the fuel, and if you did find a supply, it takes at least thirty minutes to fill up your vehicle?

Let us utilize the fuels that are plentiful in this country today, propane and gasoline together. Everyone knows gasoline and the infra-structure to purchase it is everywhere. Propane heats 50 million American homes, 3 out of 10 households use it for their outdoor grilles and its easy to find filling stations. In the future propane can be sold along-side gasoline in existing filling stations.

We must reduce our dependency on foreign oil and pollution today, not five to ten years from now. The technology to do so is here now with the Welsh Technologies Multi-Fuel System and the resources to utilize it are practically on every street corner.

The Welsh Technologies Multi-Fuel System costs a fraction of other systems and doesn't sacrifice vehicle performance but enhances it. Our system is easily installed and doesn't involve any modifications to the existing vehicle's engine. This product is the first real sensible solution to CAFE requirements and the Clean Air Act. Vehicles tested for emissions far exceed the Federal, California and New York requirements well into the future.

We should continue to research and develop new products but we must also recognize what we have today in the way of infra-structure, availability of fuel, low cost conversion and general public acceptance. There are over 38 million cars on todays roads. Not too many consumers are willing to convert to anything unless it is easy inexpensive, saves them money and is hassle free.

Congress has enacted new legislation in terms of CAFE and emission requirements for fleets. This is great, but now the American public needs some incentive to comply with it. We shouldn't be in Washington hearing about a major metropolitan transit authority complaining that it will cost them $400 million in one year to comply with proposed legislation. The ultimate expense will be that of the taxpayer. With the interest on the $400 million they could convert their entire fleet to our system. (Fortunately they are converting some vehicles to our system now). It's for that reason that the Welsh System and propane must be recognized by not only the private sector but also the public sector, Washington, for its merit.

Propane has been over-shadowed recently by natural gas. As you can now see propane plays a very important roll with current legislation. A roll that would increase dramatically if Washington recognized the benefits it has as well as the solution it is to the environment. Propane must be recognized as a "major player" in alternate fuel solutions and incentives must be given to propane now for it to be the solution to our foreign oil dependency and the erosion of our environment.

The road tax on propane should be reduced and tax incentives on conversions of existing vehicles as well as new production should be enacted by Congress to stimulate the public awareness. The State of Oklahoma and Canadians now have aggressive incentive laws. Why not the United States?

Past legislation gave homeowners incentives to insulate their houses. Lets now give incentives, to businesses to convert to propane multi-fuel vehicles; incentives to businesses to install propane outlets for their use and gasoline stations to install propane dispenser.

What Congress did in the 70's was to excite the nation and made everyone look at alternate fuels. Taxpayers must be given an incentive to save fuel and with that savings will come the emissions reduction we so badly need. A similar reward must be given again Enact $200 tax rebates per vehicle for conversions utilizing the multi-fueled system and lower the road tax on propane or temporarily eliminate it. Stimulate this nation to participate in its future. It should be the American way to show the world that with people and government working together to save energy, pollution can be reduced and the environment cleaned up.

RECOMENDATIONS FOR TAX INCENTIVES FOR MULTI-FUELED VEHICLES

1. Institute a $200 per vehicle tax credit to businesses who convert to or purchase new multi-fueled vehicles. Multi-fueled vehicles consist of vehicles that operate simultaneously with propane and gasoline, compressed natural gas and gasoline, ethanol and gasoline, methanol, and gasoline then switch to gasoline when additive fuel is depleted.
2. Institute a $200 per multi-fueled vehicle tax rebate to individual consumers who convert any vehicle to a multi-fueled vehicle as described above.
3. Repeal in its entirety or reduce the Federal Road Tax on propane to promote wider acceptance of propane as an alternate/supplemental fuel source.
4. Proportion Federal Highway or Environmental Funds to States who convert their own fleets to multi-fueled vehicles as well as institute state level tax incentives to businesses and individuals who convert to or purchase new multi-fueled vehicles.
5. Institute tax credits to new vehicle manufacturers who produce multi-fueled vehicles.
6. Institute tax credits to retailers who distribute multiple fuels (propane, compressed natural gas, etc.) through their dealers and distribution network.